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Indices of the impact of public libraries on their municipalities are made by measuring the relationship of registrants against the municipal populations. Three indices based on registrants in households are developed. The methodology is based on "pairs" of libraries exhibiting two comparable characteristics--the population served and the per capita expenditure for library services. The hypothesis tested is that there is a correlation between level of impact (effectiveness) measured by the indices and the per capita expenditure for services. A linear correlation method is used for testing. The hypothesis is rejected. However, a significant variable is discerned. Registration is strongly related to the economic profile of municipalities--where a high percentage of households earn over $7,000 per year, the percentage of registrations is large, where the percentage of incomes over $10,000 per year is higher, the percentage of registrations is higher. The conclusion is drawn that economic position in the community is a stronger factor in registration than the amount spent by the library for services. The "population served" concept of the public library standards is questioned. A uniform statistical reporting system for public libraries is recommended. The study was made of small and medium sized public libraries in New Jersey with 1964 data. This document is a Ph.D. thesis submitted to the graduate school of Rutgers University. (Author/CC)

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December 1967

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Lloyd J. Houser

Graduate School of Library Service
Rutgers - The State University

New Brunswick, New Jersey

December 1967

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Bureau of Research

EFFECTIVENESS OF PUBLIC LIBRARY SERVICES: DEVELOPMENT OF INDICES OF EFFECTIVENESS AND THEIR RELATIONSHIP TO FINANCIAL SUPPORT

By LLOYD J. HOUSER

A thesis submitted to

The Graduate School

of

Rutgers University

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

written under the direction of

Professor Ralph Blasingame

of the Graduate School of Library Service

New Brunswick, New Jersey

January, 1968

Errata

p. 3 Note 1, line 2: "succinct" instead of "succint."

p. 23 Municipality A1, Ages 6-14, "28.05%" should read "28.50%."

p. 23 Municipality A1, Ages 6-18, "43.05%" should read "43.50%."

p. 24 Rank 17, Ages 6-18, "43.05" should read "43.50."

p. 33 Note 4, last paragraph, line 3, "between and upper" should read "between an upper."

p. 39 Paragraph 2, line 2, "eight" instead of "eigh."

p. 39 Next to last line, "graph" should read "table."

Acknowledgments

I wish to express my gratitude to Mr. Roger McDonough, State Librarian of New Jersey, and the staff of the Public and School Library Services Bureau for encouragement in this study and in making their resources readily available to me.

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OBJECTIVE OF THE STUDY

The objective of this study is two-fold: 1) to develop indices of "effectiveness" of public library services based on the relationship between library registrants and the municipal population, and 2) to determine whether there is a correlation between "effectiveness" measured in this manner and the per capita financial expenditure by the library.

Effectiveness is defined here as the impact the public library makes upon its community measured in terms of registrants. Public library service is defined in the broadest sense: the library in its entirety--its board, its director and staff, its plant, its collection, access in terms of location and hours open to the public, as well as individual services designed for all or parts of the municipality. This definition has been used because the study is concerned with the total impact of the library on the total community rather than on any single aspect of service to any single segment of the community or any combination of these, and because financial support via municipal taxes supports the whole of the library for the presumed good of the whole community. The members of the municipality who register for services at a public library are defined as the "library population," the entire municipality as the municipal population.

The number of registrants may be of significance to the library for a number of reasons, e.g., the quantity of resources and materials required by the library to meet the demands of its population. The number of registrants or the library population in relation to the municipal population is understood here as the measure of the impact of the library on its municipality. That measure in percentages is

an index of the effectiveness of the library on its municipality.

Library services cost money. Given the same level of "effectiveness," the cost to a library serving a larger population should be greater than that for a library serving a small population. Or to put it another way, the greater the per capita expenditure a library makes, the greater its "effectiveness" should be. Stated simply, a library which has $5.00 per capita expenditure should be able to design and support services for a greater percentage of a given population than a library which has only $.50 per capita expenditure for a population of the same size. It is important to emphasize that this assumption is for the totality of the library in relationship to the totality of the population both of which may differ considerably in character and demographic make-up.

The hypothesis to be tested is that there is a significant relationship between the level of effectiveness and the level of per capita financial support of public library services.

BACKGROUND FOR THE STUDY

The following aspects of the public library have led to the planning of this study: financing, autonomy of operation, organization and proposals for organization, size, and "standards" and guidelines for public libraries.

Financing.

Historically, public libraries have been autonomous units of public service. Librarians need a rationale when asking for additional funds to support their services. Generally such funds are supplied by money raised through taxes on real property. In earlier times, during

the nineteenth century and up to the period between World War I and World War II, it was often aided generously by philanthropy.[1] In very recent times, financial aid for libraries has begun to come from state and/or national funds. These moneys, however, are intended to supplement library budgets rather than to be a substitute for them. The problem of financing at the local level continues.

Autonomy.

"The public library in the United States is today primarily a local institution."[2] The most prevalent form of government is a board of laymen. Of the boards sampled for the Public Library Inquiry in 1947, Leigh wrote:

> The boards in our sample possessed a large degree of autonomous authority within the general municipal government. Funds for library operations usually had to be obtained periodically by vote of the general governing body. In many cases the board was under some regulation by the general municipal officers in charge of personnel, accounting, and purchases. But within these limitations the boards enjoyed a broad authority to operate the library system.[3]

This heritage has been guarded by public librarians, trustees and civic officials. In the period of time since World War II, the large numbers of persons attending schools, colleges and universities, the increasing output of the national presses, newer and more widely used forms of information media, the change in educational policies

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[1] An outstanding example was the Carnegie Corporation. A succint account of its work has been published in its Library Program 1911-1961 (New York, 1963). Written by the present Secretary, the work includes a realistic account and appraisal of the work of the Foundation.

[2] Robert Leigh, The Public Library in the United States (New York: Columbia University Press, 1950), p. 110.

[3] Ibid., p. 112.

and objectives, the higher costs of materials, resources, and staff have all had influences on public libraries. Many of these influences have played their parts in raising the costs of public library services. Autonomy of operation has made it difficult for many public libraries to raise funds adequate to support the needs of a more literate, more highly educated community.

Organization.

Because public libraries are local institutions and because the funding of these units comes from a defined political jurisdiction measurements have been made often on the per capita basis. The American Library Association (hereafter, the A.L.A.) has for several decades at least assumed that effective service can be measured in terms of size of service area and in terms of per capita cost. "Standards for the minimum size of an effective public library may be stated in terms of annual income required or population served."[4] Granted this basic assumption, it was logical for Joeckel to say that

> given an organization of library service based on the large unit, with an income meeting recommended standards, the service available to all people of the country will begin to approach the excellent service now available only to favored communities.[5]

Inherent in this statement is the idea which has permeated professional thinking since that time, i.e., that the larger the unit of organization, the larger the base for funds will be and consequently

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[4]American Library Association. Committee on Postwar Planning: A National Plan for Public Library Service by Carleton B. Joeckel and Amy Winslow (Chicago, 1948), p. 34.

[5]Ibid., p. 35.

the more effective library services will be.

Joeckel, well aware of the heritage of the organization of public libraries, concluded that

> the large-unit system, it should be emphasized, should not be permitted to level down existing good local library services . . . The local library may formally join the large unit, or, if it desires, it may affiliate with the central library or a group of cooperating libraries, and to continue to operate under its own library board, thus maintaining a high degree of autonomy.[6]

Size.

The difficulty in discussing size of libraries is to determine what the unit of measurement is. The size of the area or the population served, as noted above, is one approach and one which the library profession commonly has used. The Library Services Branch of the Office of Education collects and reports data on public libraries by size of communities but does not include small communities.[7] In the 1966 publication by the A.L.A. on the keeping of library statistics the area concept is advocated.[8]

Beasley disagrees with this unit of measurement and argues that "libraries should be classified . . . and compared on . . .

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[6]Ibid., p. 36.

[7]U.S. Office of Education: Statistics of Public Libraries 1962 (OE-15051) (Washington, D.C.: Government Printing Office, 1963). These reports have since 1945 included libraries serving populations as small as 35,000. In the 1961-62 issue, it is noted that the University of Illinois has made plans to publish selected data for libraries serving populations below 35,000.

[8]American Library Association. Statistics Coordinating Project: Library Statistics: A Handbook of Concepts, Definitions, and Terminology, ed. by Joel Williams (Chicago, 1966), p. 34ff.

the basis of size measured in total volumes."[9] He bases his arguments on the differing functions of public libraries. Comparing libraries by population served is a part of what he refers to as "a reflection of a popular tendency to compare all libraries with an ideal, the ideal usually being the large, well financed and well managed institution."[10]

A third measurement is by total budget and/or book buying power of a library. The annual statistics of libraries prepared by the R. R. Bowker Co., a commercial publisher of library materials, uses this measure.[11]

Standards.

Since the publication in 1948 of Joeckel's national plan for libraries, the A.L.A. has published a series of works generally referred to as "standards" which have been designed to have significant impact on the development of library systems.[12] These publications

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[9]Kenneth E. Beasley, A Statistical Reporting System for Local Public Libraries, Pennsylvania State Library. Monograph No. 3 (University Park, Penn. Institute of Public Administration, The Pennsylvania State University, 1964), p. 9.

[10]Ibid.

[11]Bowker Annual of Library and Book Trade Information (New York, R. R. Bowker Company).

[12]American Library Association. Co-ordinating Committee on Revision of Public Library Standards. Public Libraries Division, Public Library Service; A Guide to Evaluation, with Minimum Standards (Chicago, 1956); American Library Association. Public Library Association, Interim Standards for Small Public Libraries: Guidelines Toward Achieving the Goals of "Public Library Service" (Chicago, 1962); American Library Association. Standards Committee and Subcommittees of the Public Library Association, Minimum Standards for Public Library Systems, 1966 (Chicago, 1967).

follow the idealism if not the logic or planning of Joeckel. Each of these works emphasizes guidelines or guiding principles and minimizes the value of the standards per se. "Standards alone provide only partial evaluation of a library, and may even, on occasion, provide an erroneous evaluation."[13] Again, "This document . . . is a tool to be used rather than a definitive statement of what a public library should be."[14]

Beginning in 1956, public libraries were advised to cooperate with each other in order to improve services. Because "the American public library has achieved its greatest development in large cities," and because "the organization of library resources . . . has continued to depend on small isolated units that have very little connection with more substantial resources in larger places,"[15] cooperation in a systems framework was advocated. Based on "dramatic evidence" of the supplementary publication describing the costs to achieve minimum standards,[16] the Co-ordinating Committee found that

> a library or a group of libraries serving 20,000 people requires almost twice as much per capita to achieve these minimum standards as a library serving 200,000 people, with the per capita cost for a library or a library group serving 50,000 or 100,000 people falling somewhere between the two.[17]

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[13] Public Library Service, p. 12.

[14] Ibid., p. 14.

[15] Ibid., p. 6.

[16] American Library Association. Co-ordinating Committee on the Revision of Public Library Standards, Cost of "Public Library Services in 1956; a supplement (Chicago, 1956).

[17] Ibid., p. 7.

One assumption in this document and the subsequent "standards" is that a public library has a service area from which it receives funds and that area is measured by the population to be served. The second assumption is that minimum standards can be achieved at a lower per capita cost by groups of libraries than by "isolated units." By implication, effectiveness in reaching greater numbers of the population is directly related to the cost of public library services. It is on these two assumptions that this study is based: the relationship between the population served and the per capita cost of services.[18]

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[18]The 1956 standards were designed for "systems" of libraries serving a minimum population of 100,000. The 1962 interim standards were designed for small libraries which had not yet begun to participate in a system. Because "small libraries" could not be defined, these interim standards were recommended to libraries serving up to 50,000 population. Although the 1966 revised standards do not state a minimum population, one of the standards (no. 39i) "assumes that the system is designed to serve a minimum population of 150,000 people." (p. 41).

Along with the professional goal of systems of libraries, one should note the first federal financial aid to libraries. In the same year as the first post-war standards, 1956, the Library Services Act was enacted into law. This was originally to aid "rural" libraries, those serving a population of 10,000 or less. In 1961, the Act was amended by the Library Services and Construction Act and the restriction on size was lifted. These funds are administered by State Library agencies.

The accomplishments of these two major forces, singly or in conjunction, is not yet clear. An announcement in the A.L.A. Bulletin of September, 1965 (p. 600) stated that the U.S. Office of Education had commissioned Dr. Lowell Martin "to do a general study of state plans and programs under LSA and LSCA." The report has not yet been made public. In addition, the Public Library Association announced in October, 1966, that it had contracted with Nelson Associates, Inc., to conduct a "Study of Library Systems." "In general this study will work toward a definition of a library system, determine what kinds and what number of systems are in existence and describe their administrative structure, financial arrangements and/or their services." (Just Between Ourselves--, v.5, no. 3, October, 1966. p. 1).

In short, the effect of the standards in terms of the development of systems is not yet documented. It is interesting to note, however, that according to the Bowker count, the number of independent libraries has grown from 6250 in 1956 to 8921 in 1965.

METHODOLOGY

The Universe

The study is limited to public libraries serving populations of from 4,000 to 100,000 in New Jersey. The amount of time and financial resources for the project in part limited the scope. In addition, the cooperation of the New Jersey State Library with the Graduate School of Library Service was a positive factor in setting the limitation. The fact that all New Jersey libraries were operating within the framework of the same state legislation and were to varying degrees participating in the same state planning for library service lent a degree of homogeneity to the libraries studied.

The statistical data is for the year 1964. The project was begun in 1965. While the most complete municipal data available were the 1960 census material, an investigation of the available State Library data and the records of individual public libraries indicated that it would be impossible to obtain comparable data for library populations for 1960. The mobility of the population of New Jersey precluded using 1960 registration records for a random sampling of registrants to whom post-card questionnaires would be sent. The Department of Conservation and Economic Development of New Jersey had published some 1964 population projections, the State Library was able to furnish more refined data for 1964 than it could for 1960 and public libraries were usually able to produce their past year's records. Certain household characteristics were available from Sales Management, Inc., one of the sources used by the New Jersey State Department of Conservation and Economic Development.

There were 567 municipalities in New Jersey in 1964.[1] Of these, 329 had public libraries.[2] Among these libraries were 151 association libraries, 2 joint libraries, and 176 municipal libraries.[3] The legal basis for these public libraries is as follows.

An association library is

> established, governed and supported by an association of citizens. Such an association is incorporated, forms its own constitution, appoints or elects its own board and is responsible for operation of the library. It may receive tax support from the local governing body.[4]

The 151 association libraries in this group are tax supported and all are free to use by the public. A joint library is

> one established by law following a referendum in two or more municipalities in which the majority of voters vote to establish such a library. It is governed by a board appointed by the mayors of the participating municipalities.[4]

A municipal library is

> one established by law following a referendum in which the majority of voters vote to establish such a library. It is supported by taxes and is governed by a 7 member board appointed by the mayor which must include the mayor and superintendent of schools.[4]

The Sample.

Twenty-eight libraries were chosen for inclusion in this study. They were selected on the basis of two characteristics--the size of the population of the municipality and the per capita

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[1]N.J. Department of Conservation and Economic Development, Research Report No. 139 (Trenton, 1965).

[2]N.J. State Library, New Jersey Public Libraries. Statistics. 1964 (Trenton, 1965).

[3]Ibid., p. ii.

[4]Ibid. Outside the scope of this study were 13 county libraries for the 21 counties of New Jersey. In 1964 there were no federations of libraries nor any regional libraries.

expenditure of the library, and their willingness to cooperate in this project.

Procedures.

Pre-testing the availability of data and the general state of library record keeping was done in the Public and School Library Services Bureau of the New Jersey State Library and in three public libraries of differing sizes. A return post-card questionnaire was designed to gather certain characteristics of members of households who were registered in public libraries and pre-tested on a random sample of registrants from the three libraries.

The primary objective of the first phase of the project was to test the reliability of the indices. For this, four pairs of libraries were selected, a control group of four and an experimental group of four. Each pair exhibited equal or nearly equal municipal populations and per capita expenditure by the libraries. The following class limits were arbitrarily kept small to keep the two municipalities in each pair as similar as possible.

Table 1

CLASS LIMITS FOR
SIZE OF MUNICIPALITY AND PER CAPITA EXPENDITURE BY LIBRARY

POPULATION	CLASS LIMITS	PER CAPITA EXPENDITURE LIMITS
Under 14,999	500 persons	$.10 throughout
15,000 - 24,999	1,000	
25,000 - 49,999	5,000	
over 50,000	10,000	

Thus, in the first class limit, the two towns could have populations of 500 persons difference only. The per capita expenditure by both libraries would be within $.10 of each other. E.g., a municipal-

ity of 10,000 population would be compared only to a municipality of 9,500 to 10,500 population. If the public library in the first municipality had a per capita expenditure of $1.00, the public library in the paired municipality could have a per capita expenditure of from $.90 to $1.10. In a very few instances these limits were expanded in order to form a pair. Where this has been done it has been duly noted. Since all the characteristics of the public library are included in the concept of its making an impact on the municipality, these narrow limits have been made to eliminate as much as possible the element of chance or coincidence in developing the indices. The overall result of such limits assures comparable budgets for comparable "populations served."

A visit was made to each library in the project 1) to collect information not available from annual reports made to the State Library and 2) to draw a random sample of 100 names from the 1964 registration file. (In four small libraries less than 100 persons had registered in 1964. A proportionately smaller sample was necessarily drawn.) Only adult registrants' names were included in the sample. High school students are registered in public libraries as adults. The results of the response to the questionnaire gave sufficient evidence to consider the development of the indices, particularly the household index, a reliable measure. At the same time, the results suggested that additional "pairs" of libraries be tested to confirm the strong indication that one particular variable --the household-income profile of the municipality--was significant in the evaluation of these measures.

Therefore, in phase two of the project, an additional six pairs of libraries were studied, and later eight additional non-paired

libraries were chosen for study on the basis of a wide range of the two characteristics.

Table 2

PUBLIC LIBRARIES IN THE STUDY

Municipality (Coded)	Population (1964)	Per Capita Expenditure (1964) for Public Library Services
A1	26,650	$3.93
A2	25,820	3.90
B1	4,990	2.48
B2	5,420	2.47
C1	37,320	2.15
C2	36,230	2.06
D1	12,200	4.11
D2	12,420	4.12
E1	23,520	6.88*
E2	25,391	6.76
F1	25,750	1.38
F2	26,130	1.33
G1	30,830	2.99
G2	33,490	3.07
H1	37,940	2.59
H2	41,970	2.62
J1	47,860	3.05
J2	55,130*	3.13
K1	92,230	1.91*
K2	114,890	1.78
L	54,930	1.50
M	7,730	6.53
N	15,440	.43
P	20,250	4.36
Q	32,090	4.64
R	37,040	.60
S	42,880	6.28
T	60,790	3.44

*Limits extended

Population estimates for this table and the study are from the Population Estimates 1964 published by the New Jersey Department of Conservation and Economic Development in its Research Report No. 139, Trenton, 1965. Public Library per capita expenditure figures are from New Jersey Public Libraries Statistics 1964 published by the State Library of New Jersey, Trenton, 1965.

The Registrant as the Unit of Measure.

The registrant, the person who has registered for services at his public library was selected as the unit of measure because he was the most clearly and readily identified unit in the area served concept. The difficulties of taking a valid statistical sample of users of the library, who may or may not be registrants, include the hours the libraries are open to the public, the seasonal variation in use of the library and the personnel and time required to collect the sample. These difficulties placed the user as the unit of measure beyond the scope of this project. Probably the best sampling procedure would have been from the community itself. This, too, was beyond the limitations of the project.[5]

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[5]The 1956 standards advocates systems for an area but except for Standard No. 66, "Continuous and periodic study of its community should be made by the library in order to know persons, groups, and institutions thoroughly, and to keep up with developments and changes," (p. 25) no guidelines or standaards provide for the collection of data which would enable the library to measure its impact on its community. The 1966 revised standards include in Guiding Principle No. 30 (p. 35) "Evaluation of library service is essential to the progress of library systems" and adds "To determine the effectiveness of the library in serving the needs of the community, each library system must constantly evaluate its progress." One must read a great deal into the standards to understand what is meant by the "needs of the community." There is still no professional recognition that the study of population characteristics should or could be a part of library planning or evaluation.

The A.L.A. publication, Library Statistics states flatly (p. 37) "It is recommended that comparative statistics for registration not be collected because they bear little relation to library use and lack uniformity," but acknowledges immediately that "because registration files provide valuable data for research into characteristics of library users, it would be helpful to know of their existence." This should be compared with Beasley's analysis of cardholders on pages 14 and 15 of his study noted above which is presumably the basis for the statements made in the A.L.A. publication.

Beasley notes correctly that "the number of cards outstanding . . . reveals little except to indicate that portion of the 'population served' that has a legal privilege to take a book out of the library building," and that the comparative uses made of registration figures by librarians are often misleading. But he notes also that a record

of cardholders has a place for internal management of the collection, that it "will give some insight into the total library service" and finally it would be a positive administrative step towards public access to all libraries. He concludes, "Given all of these positive and negative factors, it would be preferable to gather data on cardholders on a three or five year basis so that the statistical adjustments and analyses . . . could be made."

RESULTS OF THE QUESTIONNAIRE

The following request for information was sent on a double post-card to a random sample of 1964 registrants of each of the public libraries in the sample.

POST-CARD QUESTIONNAIRE

Dear Sir or Madam:
Your public librarian is cooperating in a survey of N.J. public libraries which I am conducting. A number of names including yours was selected at random from your library's 1964 registration record. I should appreciate your filling in the attached card and returning it to me at your earliest convenience. High School age users were included in this sample of names. If this card is addressed to a H.S. registrant, please fill in information for the entire household.

Strictest anonymity will be observed. DO NOT SIGN THE CARD.

. . . . . .

The questionnaire was printed on the verso of the attached post-card.

	Registered at P.L. in 1964? (yes/no)	Age in 1964	H.S. Grad? (yes/no)	No. of years of college:	Occupation
Head of household:	___	___	___	___	_____
Spouse:	___	___	___	___	_____
Children living at home:	___	___			
	___	___			
	___	___			
	___	___			
	___	___			

Total Family Income per year (1964)
Under $2500. ___
$2500.-$3999. ___
$4000.-$6999. ___
$7000.-$9999. ___
over $10,000. ___

. . . . . .

The overall average response to the post-card questionnaire was 46.52%. The range of response rate was from 40% to 69%; the median was 45%.

Characteristics of the Respondents

The average family size for the municipalities included in the project was 3.26 persons, a slight decrease from the 1960 census figure of 3.28.[1]

Table 3

AVERAGE FAMILY SIZES

Municipality	Average Family Public Library 1964	Average Family Municipality 1964	Average Family Municipality 1960
A1	3.93	3.87	3.87
A2	4.34	4.03	3.93
B1	3.26	3.22	3.22
B2	3.76	2.99	2.99
C1	3.87	3.39	3.33
C2	3.73	3.21	3.14
D1	3.74	2.84	2.95
D2	3.50	3.50	3.50
E1	3.32	3.31	3.25
E2	3.90	3.03	3.40
F1	3.37	2.68	2.81
F2	3.42	3.19	3.34
G1	3.13	3.34	3.34
G2	3.90	3.28	3.55
H1	3.95	3.27	3.13
H2	3.99	3.89	3.63
J1	3.27	3.32	3.19
J2	3.05	3.06	2.91
K1	3.88	3.59	3.74
K2	3.52	3.37	3.29
L	3.94	4.04	3.68
M	3.24	2.27	2.69
N	3.45	3.03	3.28
P	3.58	3.21	3.33
Q	3.58	2.89	3.00
R	3.85	3.31	3.50
S	2.84	3.18	3.11
T	3.11	2.87	2.83
Average:	3.59	3.26	3.28

[1]Data for family size, households, and household incomes for municipalities throughout the study are from Sales Management (June 10, 1965) p. 918ff. except where noted.

The average size of the families represented in the registration files of the public library from whom the post-card requests were returned (herafter "the public library family" in contrast to "the municipal family") was 3.59 persons, one-third person per family greater than the municipal family. In the 28 municipalities, the public library average family size was larger than the corresponding average municipal family.

The following table shows the average family sizes by population groupings.

Table 4

FAMILY SIZES BY POPULATION GROUPINGS

Population	Average Size of Public Library Family	Average Size of Municipal Family
4,000 - 9,999	3.42	2.83
10,000 - 14,999	3.62	3.11
15,000 - 24,999	3.45	3.18
25,000 - 34,999	3.70	3.29
35,000 - 49,999	3.54	3.37
over 50,000	3.50	3.39

The following table shows the percentage of response by population groupings.

Table 5

QUESTIONNAIRE RESPONSE BY POPULATION GROUPINGS

Population	Percentage of Total Questionnaires Returned	Percentage of Total Questionnaires Sent
4,000 - 9,999	7.52%	35.65%
10,000 - 14,999	5.23	38.51
15,000 - 24,999	11.56	42.00
25,000 - 34,999	34.31	46.75
35,000 - 49,999	23.67	36.86
over 50,000	17.71	38.60
	100.00%	

The following table shows the percentages of response by 1964 household incomes.

Table 6

QUESTIONNAIRE RESPONSE BY INCOME GROUPINGS

Household Income	Percentage of Total Response
Under $2500.	1.93%
$2500. - $3999.	1.83
$4000. - $6999.	17.34
$7000. - $9999.	24.22
over $10,000.	54.68
	100.00%

The following table lists comparative median incomes for 1964.

Table 7

MEDIAN INCOMES

Municipality	Median Incomes of Public Library Families	Median Incomes of Municipal Families
A1	$10,000.+	$ 9,572.
A2	10,000.+	8,268.
D2	10,000.+	8,575.
E1	10,000.+	9,274.
E2	10,000.+	10,000.+
G1	10,000.+	7,503.
G2	10,000.+	10,000.+
H2	10,000.+	8,561.
J1	10,000.+	6,676.
K1	10,000.+	6,610.
L	10,000.+	6,747.
M	10,000.+	5,236.
N	10,000.+	4,880.
P	10,000.+	10,000.+
Q	10,000.+	6,448.
R	10,000.+	6,735.
S	10,000.+	8,488.
T	10,000.+	6,072.
F1	9,813.	7,895.
B1	9,318.	9,318.
H	9,251.	5,649.
B2	8,929.	5,630.
K2	8,929.	5,062.
J2	8,651.	5,451.
D1	8,350.	6,050.
F2	8,313.	5,969.
C1	8,312.	6,635.
C2	8,200.	6,422.

The following table ranks the median incomes of municipal families. Public Library families' median incomes were ranked in Table 7, above. Note that the median in the following table is $6656. while the lowest rank for public library families is $8200.

Table 8

RANKED MEDIAN INCOMES OF MUNICIPAL FAMILIES

Municipality	Ranked Median Incomes of Municipal Families
E2	$10,000.+
G2	10,000.+
P	10,000.+
A1	9,572.
E1	9,274.
D2	8,575.
H2	8,561.
S	8,488.
A2	8,268.
F1	7,895.
G1	7,503.
L	6,747.
R	6,735.
J1	6,676.
C1	6,635.
K1	6,610.
Q	6,448.
C2	6,422.
T	6,072.
D1	6,050.
F2	5,969.
B1	5,856.
H1	5,649.
B2	5,630.
J2	5,451.
M	5,236.
K2	5,062.
N	4,880.

The following table shows the median income groupings in percentages for both municipal and public library households by population groupings.

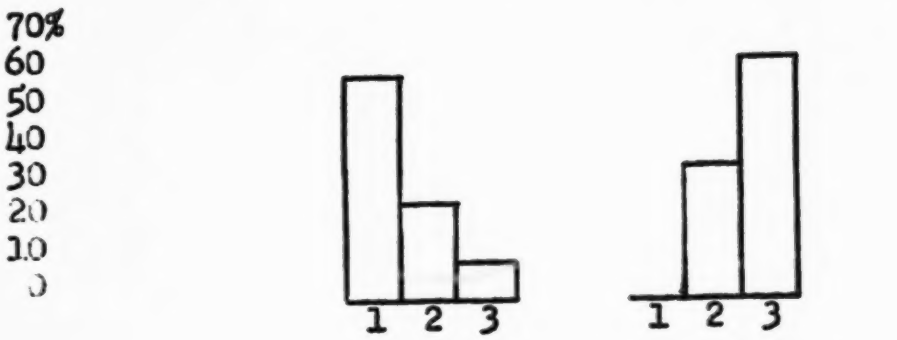
Table 9

MEDIAN INCOMES IN PERCENTAGES BY POPULATION GROUPINGS

Population	$4000.-6999.		$7000.-9999.		Over $10,000.	
	Muni.	P.L.	Muni.	P.L.	Muni.	P.L.
4,000 - 9,999	10.72%	- %	- %	7.14%	- %	3.57%
10,000 - 14,999	3.57	-	3.57	3.57	-	3.57
15,000 - 24,999	3.57	-	3.57	-	3.57	10.73
25,000 - 34,999	7.14	-	14.29	7.14	7.15	21.44
35,000 - 49,999	17.85	-	7.14	10.73	-	14.28
over 50,000	17.86	-	-	7.14	-	10.72
	60.71%	- %	28.57%	35.71%	10.72%	64.29%

The above table may be graphed as follows.

Graph 1



1 = median income between $4000. and $6999.
2 = median income between $7000. and $9999.
3 = median income over $10,000.

The median income for the households of 18 of the 28 groups of public library families studied was over $10,000. For the remaining 10 groups the range was from $8200. to $9813. For the households of the corresponding municipalities, the median income of only 3 of the groups were over $10,000. For the remaining 25, the range was from $4880. to $9572. The median household income for the groups of public library families is in <u>inverse</u> <u>ratio</u> to the median household income for the municipal families.

In summary, the highest percentage of the total response came from the municipalities in the 25,000 to 34,999 population group. Registrants from municipalities in this group also returned the highest percentage of requests, 46.75% which is almost equal to the overall average response of 46.52%.

The smallest percentage of the total response (7.52%) came from small towns with populations of from 4,000 to 14,999 although registrants in these municipalities returned approximately the same percentage of requests (36.65%) as the registrants in municipalities of from 35,000 to 49,999 populations (36.86%) who returned over three times as much of the total response (23.67%).

The response by age groups is as follows.

Table 10

PERCENTAGES OF RESPONSES BY AGE GROUPS

Municipality	Ages 6-14	Ages 15-18	Ages 6-18	Age 19 and over
A1	28.05%	15.05%	43.05%	56.45%
A2	48.74	9.24	57.98	42.02
B1	35.82	13.43	49.25	50.75
B2	32.14	12.50	44.64	55.36
C1	37.68	11.59	49.27	50.73
C2	26.39	29.17	55.56	44.44
D1	21.43	25.00	46.43	53.57
D2	30.30	6.06	36.36	63.64
E1	23.88	11.94	35.82	64.18
E2	40.98	4.92	45.90	54.10
F1	28.79	19.70	48.49	51.51
F2	32.98	3.19	36.17	63.83
G1	29.33	9.00	38.33	62.67
G2	30.71	10.00	40.71	59.29
H1	35.16	10.89	46.05	53.85
H2	45.78	7.23	53.01	46.99
J1	23.33	9.17	32.50	67.50
J2	20.45	10.23	30.68	69.32
K1	35.85	15.09	50.94	49.06
K2	33.33	12.34	45.67	54.33
L	26.25	18.75	45.00	55.00
M	32.47	9.09	41.56	58.44
N	39.13	11.59	50.72	49.28
P	26.17	13.08	39.25	60.75
Q	22.89	22.89	45.78	54.22
R	38.30	9.57	47.87	52.13
S	26.74	5.81	32.55	67.45
T	28.95	10.53	39.48	60.52

Table 11

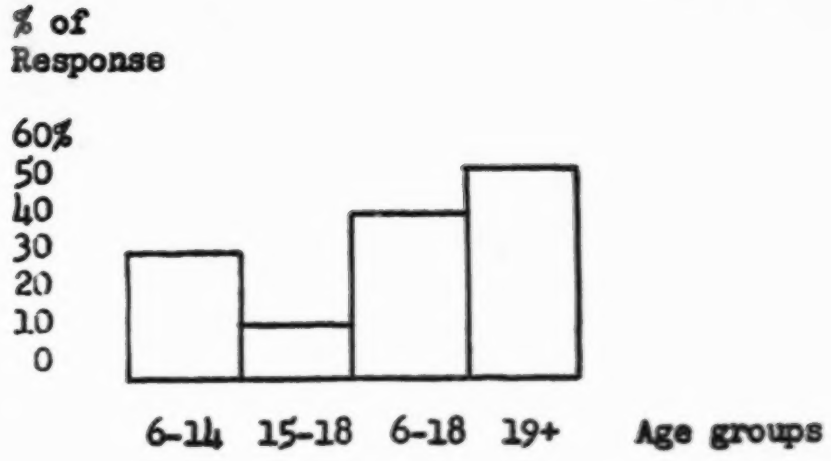
RANKED PERCENTAGES OF RESPONSES BY AGE GROUPS

Rank	Ages 6-14	Ages 15-18	Ages 6-18	Age 19 and over
1	48.74%	29.17%	57.98%	69.32%
2	45.78	25.00	55.56	67.50
3	40.98	22.89	53.01	67.45
4	39.13	19.70	50.94	64.18
5	38.30	18.75	50.72	63.83
6	37.68	15.09	49.27	63.64
7	35.85	15.05	49.25	62.67
8	35.82	13.43	48.49	60.75
9	35.16	13.08	47.87	60.52
10	33.33	12.50	46.43	59.29
11	32.98	12.34	46.05	58.44
12	32.47	11.94	45.90	56.45
13	32.14	11.59	45.78	55.36
14	30.71	11.59	45.67	55.00
15	30.30	10.89	45.00	54.33
16	29.33	10.53	44.64	54.22
17	28.95	10.23	43.05	54.10
18	28.79	10.00	41.56	53.85
19	28.50	9.57	40.71	53.57
20	26.74	9.24	39.48	52.13
21	26.39	9.17	39.25	51.51
22	26.25	9.09	38.33	50.75
23	26.17	9.00	36.36	50.73
24	23.88	7.23	36.17	49.28
25	23.33	6.06	35.82	49.06
26	22.89	5.81	32.55	46.99
27	21.43	4.92	32.50	44.44
28	20.45	3.19	30.68	42.02
Median:	30.50%	11.25%	45.33%	54.66%
Average:	31.52%	12.39%	43.91%	56.09%

Summary:	Range	Median	Average
Age 19+	42-69%	54.66%	56.09%
Ages 6-18	30-58%	45.33%	43.91%
			100.00%
Detail:			
Ages 6-14	20-49%	30.50%	31.52%
Ages 15-18	3-29%	11.25%	12.39%
			43.91%

Graphically, the response by age groups is as follows.

Graph 2



Contrary to expectations, there is no relationship between the size of the public library family and the percentage of students' registrations. For example, public libraries whose average family sizes were 3.11, 3.24 and 3.90 persons attracted 40±% of their respective total registrations from students aged 6-18.

Neither the median income of the public library family nor the median income of the municipal family has a relationship to the percentages of students registered at the public library.

An insignificant number of high school aged students were reported as not being registered at a public library, and only a very small number of elementary school age students were similarly reported. However, an appreciable number of adults in households were reported as not being registered at the public library. The range of percentages of non-registered adults was from 7% to 25%; the median was 15.98%; the average was 15.90%.

Table 12

PERCENTAGES OF ADULTS IN RESPONDING HOUSEHOLDS
NOT REGISTERED AT THE PUBLIC LIBRARY

Municipality	Non-registered Adults
E1	6.94%
A1	8.82
S	10.42
A2	10.53
G1	11.76
B2	12.50
E2	12.86
B1	12.99
D2	12.99
P	13.01
K2	13.83
C1	14.81
M	15.38
L	15.79
Q	16.16
G2	16.17
D1	16.42
H1	16.51
J2	17.76
J1	18.37
R	18.97
K1	19.08
T	19.15
F1	20.00
H2	21.70
N	22.47
F2	24.80
C2	25.00
Median:	15.98%
Average:	15.90%

Use studies have shown for many years that women use the public library more often than do men. It is also true that in general, adult women register in greater percentages than men do. A very recent study of circulation records showed that "female education emerges as the strongest single predictor of library circulation."[2] In this study, women registrants ranged from 47.5% to 70.59% of the total; the median is 56.16% and the average is 56.98%. These percentages represent adult women registrants in the library population rather than as individuals in the municipality. The range of median public library family incomes (Table 7, page 19) suggests that one could expect similar patterns in registration as the Parker and Paisley study found in circulation.

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[2]Edwin B. Parker and William J. Paisley, "Predicting Library Circulation from Community Characteristics," Public Opinion Quarterly (Spring, 1965) p. 52.

Table 13

PERCENTAGES OF ADULT FEMALE REGISTERED RESPONDENTS

Municipality	Female Respondents
E	70.59%
F	64.62
G2	63.86
H2	61.90
G1	61.70
K2	61.54
I2	61.29
M	60.00
L	59.09
F2	58.33
H1	57.14
C1	57.14
K1	56.98
C2	56.25
I2	56.06
F1	55.88
H1	55.88
A1	55.24
B	55.10
D	53.45
G	53.33
H1	53.33
?	52.17
A2	52.00
K1	51.92
K2	50.00
J2	47.54
Median:	56.16%
Average:	56.98%

There is definitely a significant relationship between the educational level of the registrants and their household incomes. The range of percentages of registrants who had attended college or university for four or more years was 20% to 65.2%; the median was 41.17% and the average was 41.95%. The range for those who had attended college or university one or more years was 37.14% to 80.95%; the median was 58.05% and the average was 59.26%.

Table 14

PERCENTAGES OF RESPONSE BY EDUCATION

Municipality	Not High School Graduate	High School Graduate	College or University 1-3 Years	College or University 4 or more
A1	.00%	25.71%	16.19%	58.10%
A2	4.00	36.00	12.00	48.00
B1	5.88	26.47	23.53	44.12
B2	.00	51.61	16.13	32.36
C1	8.57	54.29	17.14	20.00
C2	15.67	43.75	9.38	31.25
D1	.00	50.00	13.33	36.67
D2	2.38	16.67	19.05	61.90
E2	1.52	19.70	18.18	60.60
F1	10.29	41.18	23.53	25.00
F2	6.67	35.00	21.67	36.66
G1	8.51	40.43	6.38	44.68
G2	2.41	22.89	14.46	60.24
H1	8.16	53.06	8.16	30.62
H2	2.56	28.21	23.08	46.15
J1	4.94	24.69	27.16	43.21
J2	8.20	34.43	21.31	36.06
K1	1.92	30.77	15.38	51.93
K2	9.10	45.45	18.18	27.27
L	9.09	22.73	22.73	45.45
M	2.22	53.34	22.22	22.22
N	5.88	47.06	11.76	35.30
P	1.54	26.15	21.54	50.77
Q	8.89	33.33	24.44	33.34
R	4.08	44.90	16.33	34.69
S	3.45	17.24	13.79	65.52
T	13.04	41.30	6.53	39.13

From the above, two additional tables have been constructed to show the percentages of response by education ranked with household income. The first is the category of 4 or more years of college or university; the second is a combination of the two columns on the right above and includes all registrants who have had one or more years of college or university.

Table 15

RANKED PERCENTAGES OF RESPONSE BY EDUCATION WITH HOUSEHOLD INCOME

Municipality	College/Univ. 4 or more years	Public Library Family Median Household Income
S	65.52%	$10,000.+
D2	61.90	10,000.+
E2	60.60	10,000.+
G2	60.24	10,000.+
A1	58.10	10,000.+
E1	53.49	10,000.+
K1	51.93	10,000.+
P	50.77	10,000.+
A2	48.00	10,000.+
H2	46.15	10,000.+
G1	44.68	10,000.+
B1	44.12	9,318.
J1	43.21	10,000.+
T	39.13	10,000.+
D1	36.67	8,350.
F2	36.66	8,313.
J2	36.06	8,651.
N	35.30	10,000.+
R	34.69	10,000.+
Q	33.34	10,000.+
B2	32.26	8,929.
C2	31.25	8,200.
H1	30.62	9,251.
K2	27.27	8,929.
F1	25.00	9,813.
M	22.22	10,000.+
C1	20.00	8,312.
Median:	41.17%	
Average:	41.95%	

Table 16

RANKED PERCENTAGES OF RESPONSE BY EDUCATION WITH HOUSEHOLD INCOME

Municipality	College/Univ. 1 or more years	Public Library Family Median Household Income
D2	80.95%	$10,000.+
S	79.31	10,000.+
E2	78.78	10,000.+
G2	74.70	10,000.+
E1	74.42	10,000.+
A1	74.29	10,000.+
P	72.31	10,000.+
J1	70.37	10,000.+
H2	69.23	10,000.+
L	68.18	10,000.+
H1	67.65	9,318.
K1	67.31	10,000.+
A2	60.00	10,000.+
F2	58.33	8,313.
Q	57.78	10,000.+
J2	57.37	8,651.
G1	51.06	10,000.+
R	51.02	10,000.+
D1	50.00	8,350.
F1	48.53	9,813.
B2	48.39	8,929.
N	47.06	10,000.+
T	45.66	10,000.+
M	44.44	8,[illegible].
C2	40.63	8,200.
H1	38.78	9,251.
C1	37.14	8,312.
Median:	58.05%	
Average:	59.26%	

The relationship of education to library registration by members of the higher income families is very strong. Above the median of 58.05% (Table 16) for registrants who have attended college or university 1 or more years only two groups are in a public library median income group of under $10,000. per year and when the college graduates are ranked separately (Table 15) only one group above the median of 41.17% is in a public library median income group of under $10,000. per year.

From these data emerge some salient characteristics of the "public libraries' families." They are larger than the average municipal family; they earn a higher income; nearly all of their children register at the public library, and a little better than half of the adult members of the households register. The adults are represented by women more than by men. An average of over 40% of the adults have attended four or more years of college or university while only an average of less than 6% of adults who did not graduate from high school register at the public library. The consistency of response and the comparability of registrants from municipality to municipality regardless of the per capita expenditures of the public libraries and regardless of the median income of the households in the municipalities are remarkable. Most noteworthy is the very small range of the incomes of the public library families earning less than $10,000. per year.

The non-respondents cannot of course be described in discrete terms. In the pre-testing it was noted that some libraries' registrants were requested to list their occupation on the registration application forms. In four libraries where this information was available occupations were noted for all the names selected in the random sample and this information was solicited on the questionnaire. A complete check was made for two of the municipalities and spot checks in two others to compare the occupations of the respondents and the non-respondents to determine whether particular occupation groups (and by implication, income groups) responded or did not respond. No discernible pattern could be established for either group.

Berelson noted in 1949 that the public library serves the middle class[3] and recent studies and conferences confirm the continued orientation of the public library to the middle class.[4] It has been concluded then, that the response was fairly representative and that the results are not skewed.

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[3]Bernard Berelson, The Library's Public (New York, Columbia University Press, 1949) p. 49.

[4]Ralph W. Conant, ed., The Public Library and The City. The Symposium on Library Functions in the Changing Metropolis sponsored by The Joint Center for Urban Studies of M.I.T. and Harvard University (Cambridge, The M.I.T. Press, 1965). See, e.g.:

Allison Davis, "Social-Class Perspectives." A major problem of urban libraries is their relative ineffectiveness in attracting adults and children from the lower half of the working class." (p. 33)

Herbert J. Gans, "The Public Library in Perspective." "Since users come voluntarily, the library must attract those people who are motivated already, largely of the middle-class and better educated sectors of our population, or those in search of recreational reading." (p.68)

Edward C. Banfield, "Needed: A Public Purpose." "Certainly no one believes that the library is now of any service to the lower class. [illegible] (p. 100)

See also, Kathleen Molz, "The Public Library: The People's University?" The American Scholar (v.34, no. 1, Winter 64/65) p. 101. "Libraries do not create communities, they merely serve them, and when contemporary society is itself divisive, split now between and upper and lower economic stratification, then culutral cohesion (by the library), by contrast, seems artificial and contrived."

THE HOUSEHOLD INDICES

Sales Management defines a household as the

> equivalent to the Census Bureau's definition of a "private household," which includes all persons occupying a house, an apartment or other group of rooms, or a room regarded as a dwelling unit. Any occupied dwelling unit can be considered a household. . . . A single person living alone in an apartment or a dwelling unit is counted as a household, unless he lives in a hotel, rooming house, college dormitory, military barracks or institution.[1]

This definition is used also by the New Jersey State Department of Conservation and Economic Development. All household data and estimates in this study conform to this definition.

The basic assumptions which led to this study--the "population served" concept and the per capita expenditure basis by which public libraries describe their financial expenditure--and the suggestions and implications of the municipal household income factor as noted again and again in the description of the characteristics of the respondents led to the development of indices based on the household

munity by public library services rather than the individual as the unit. There is little to be gained by reiterating the importance of the public library as a supplementary source of materials for students outside their schools and school libraries or in listing the evidence which points to the public library as a source of reading materials for the "housewife" or the "educated female." These are individual services to segments of the municipal population. Neither housewives nor children are, singly, representative tax payers although their influence in such matters as a referendum to increase taxes for library services

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[1] Sales Management, p. 223.

should not be lightly dismissed. The support of the library by taxes points to the larger unit of the household as the smallest unit in the community by which to measure the total impact of library services.

Three household indices were developed. Index 1 is the percentage of municipal households in which at least one member was registered at the public library. This "basic household" index is applicable to every municipality regardless of the size of the municipality, the wealth or poverty of the municipality, the average size of families in the municipality or the over-all state of the library. It is this index which forms the basis for the reliability of the measurements presented here.

Index 2 is the percentage of municipal households in which the head of household, spouse and at least one child living at home were registered at the public library. This index, the "family index," indicates, in part at least, the degree to which library services [illegible] community. Considering the average size of family variable alone, it would be surprising to find any great degree of similarity in the "paired" library populations. Yet the striking similarity in half of the "pairs" strongly suggests that with refinements made to account for the variability of family size and median ages in the community statistical reliability could be shown for this family index as well as the basic household index.

Index 3 is the percentage of municipal households with a total annual income of over $10,000. in which at least one member of the household is registered at the public library. In every instance this index accounts for the greatest impact or highest level of effectiveness of the public library's services.

The levels of effectiveness as measured by these household indices are distributed over a wide range. Examined solely from the point of view of the ten years of recommendations of the guidelines and standards by the A.L.A. they do not seem to present either a successful picture on the part of individual libraries or from the point of view of the systems approach. The following table is the result of measurement by the basic household index.

Table 17

LEVEL OF EFFECTIVENESS MEASURED BY INDEX 1

Municipality	Index 1	
S	77.73%	
G1	67.60	
C2	64.69	
C1	63.36	
A1	62.34	
A2	57.18	
D2	56.31	
P	52.49	
E1	49.96	
G2	[illegible]	
E2	48.56	
F2	47.61	
H2	44.09	Median: 41.14%
H1	40.34	
B1	38.67	
J2	38.45	
Q	33.15	
M	32.56	
B2	31.79	
F1	29.68	
N	28.82	
T	27.50	
L	23.38	
D1	20.12	
K2	18.84	
R	18.77	
K1	17.12	

The median for Index 1 is 41.14%. This percentage in isolation does not suggest any particular vitality for the public library. Only 8 of the libraries attracted over 50% of the municipal population measured by this index. If one recognizes book circulation as even one of the predominate functions of the public library then the percentages below the median of 41.14% are indeed difficult to reconcile with the goals of the national standards.

Effectiveness measured by Index 2, the family index, in which the head of the household, the spouse and at least one child living at home is registered, is not very great.

Table 18

LEVEL OF EFFECTIVENESS MEASURED BY INDEX 2

Municipality	Index 2	
A2	23.59%	
C1	22.48	
A1	22.32	
[illegible]	19.98	
P	[illegible]	
S	16.12	
G1	15.91	
G2	15.12	
H2	13.86	
C2	12.94	
D2	11.26	
R	11.04	
J1	10.13	Median: 9.62%
B2	9.11	
H1	8.72	
F1	8.63	
E1	8.56	
T	6.51	
J2	5.98	
F2	5.71	
K2	5.71	
M	5.21	
K1	5.01	
N	4.65	
R	4.29	
L	3.90	
D1	2.98	

Effectiveness measured by Indices 1 and 2 are based solely on the members of the household without regard to the economic position of the household in the community. When this factor is introduced in Index 3, the "household income index," which measured the percentage of municipal households with a total annual income of over $10,000. per year in which at least one member of the household is registered at the public library, a completely different picture of the impact of library services emerges.

Table 19

LEVEL OF EFFECTIVENESS MEASURED BY INDEX 3

Municipality	Index 3	
H1	99.11%	
E1	98.62	
S	98.28	
G1	97.76	
A1	97.24	
N	94.11	
B2	91.33	
J1	87.32	
C1	86.09	
M	85.40	
F2	85.14	
A2	81.70	Median: 81.28%
H2	80.86	
E1	77.86	
T	75.62	
C2	72.78	
Q	67.35	
G2	64.84	
E2	61.66	
K1	59.63	
L	57.99	
P	53.02	
K1	39.96	
F1	39.06	
R	34.99	
D1	23.01	

With 7 libraries achieving over a 90% level of effectiveness by this Index and a median of 81.28%, the four libraries which did not attract over 50% by this Index can only be considered exceptions to the rule. It is important to recall that these results are measurement of the library population against the municipal population and are not measurements of one library against another.

In the Appendix, bar graphs have been drawn for the twenty pairs of libraries and the eigh single libraries in this study. These graphs show the proportions of library families to the municipal families by income groupings.

A study of these graphs produces some generalities. When the household incomes of a pair of municipalities of the same size are distributed similarly among the income groups, the distribution of the library population measured by Index 1 will be distributed in similar patterns and to a remarkably consistent degree.

The following table on which the graphs are based summarizes the findings for Index 1 and 2 for the ten pairs of libraries. Included in this graph are the populations of the municipalities which the libraries serve and the per capita expenditures by the libraries.

Table 20

INDICES 1 AND 2 FOR PAIRED LIBRARIES

Municipality	Population	Per Capita Expenditure	Index 1	Index 2
A1	26,650	$3.93	62.34%	22.32%
A2	25,820	3.90	57.18	23.59
B1	4,990	2.18	39.67	8.96
B2	5,120	2.17	31.79	9.11
C1	37,320	2.15	63.36	22.18
C2	36,730	2.06	64.69	12.94 *
D1	12,020	4.11	20.12	2.98
D2	12,120	4.12	56.31 *	23.26 *
E1	23,520	6.88*	49.96	29.98
E2	25,391	6.76	48.56	29.43
F1	25,750	1.38	29.68	8.63
F2	26,130	1.33	47.61 *	5.71 *
G1	30,830	2.99	67.60	15.91
G2	33,490	3.07	48.74 *	15.12
H1	37,940	2.59	40.34	8.72
H2	41,970	2.62	44.39	13.86 *
J1	47,860	3.05	48.33	10.13
J2	95,130*	3.13	38.45	5.98 *
K1	93,230	1.91	27.12	5.01
K2	124,890	1.78*	23.84	5.71

*class limits extended

A study of this table suggests at a glance that the per capita expenditure alone is not directly related to the effectiveness of library services. Throughout the study, particularly in studying the characteristics of the respondents, the household income variable appeared to be the important contributing factor relating to registration. The development of Index 3, the household income index, reinforced this suggestion. Therefore, in addition to testing the hypothesis--the determination of whether there was a relationship between the level of effectiveness as measured by these indices--a test was made of the relationship between Index 1 and the percentage of municipal households whose total annual income was over $7,000. and for those over $10,000.

The Pearson linear correlation coefficient was computed for all three models.[2] The *rho* for the per capita expenditure relationship to Index 1 was not significant even at a weak .10$ level. On the other hand, the *rho* of .78 for the percentages of households whose annual income was more than $7,000. was .78. (*Rho* for an n of 28 lies between .45 and .49 at the strong .01$ level.) When the test was made on the relationship between Index 1 and the percentages of households whose annual income was $10,000. or more per year, the *rho* increased to .83.

Using the same testing procedure for Index 2, the family index, the following results were obtained. For Index 2 and the per capita expenditure there was no statistical significance. For Index 2 and the percentages of households whose incomes were over $7,000. per year

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[2]Computed from linear correlation tables in A. L. O'Toole, Elementary Practical Statistics, (N.Y., Macmillan, 1964), Table 8.17, p. 272.

rho was .80 and, as with Index 1, when the Index was tested against the percentages of households whose annual incomes were $10,000. or more per year, rho increased to .83.

CONCLUSIONS

From the evidence presented, indices of effectiveness based on the registrant at the public library can be developed on a household basis with a high degree of reliability. For comparative purposes, however, the 'population served' concept alone is inadequate. Indeed, the most significant factor determined in this study is the economic profile of a municipality measured by household incomes. The evidence points most strongly to the relationship between effectiveness or impact of public library services and the presence of a high percentage of households in a municipality in the middle and upper middle income groups. There is no evidence to support the hypothesis that there is a relationship between the impact of library services and the amount the library spends on a per capita basis. The hypothesis of this study must, therefore, be rejected.

However, the size of population served has no direct relationship to effectiveness as measured here. This must be qualified to the size of libraries studied here. No metropolitan libraries were included in this study. It is more accurate to limit this statement to libraries serving small and medium sized populations.

In short, library services in small and medium sized municipalities can achieve an impact on the total or municipal population or achieve a high level of effectiveness in relation to the wealth of the community measured by total annual household incomes.

Regardless of the overall wealth of the municipality, library services have their greatest impact on the middle and upper middle income groups within the municipality. This kind of effectiveness can be achieved at least for the small and medium sized communities without particular regard for per capita expenditure.

Implications of the Study and Areas for Further Research.

One must question seriously how and why municipalities with populations of 25,391 and 26,130 with per capita expenditures of $6.76 and $1.33 respectively can each achieve a level of effectiveness as measured by Index 1 here of 48.56% and 47.61%. It is unlikely that librarians need to be shown again that their services do not reach all sectors of society. Not only the objectives of public libraries as expressed rather explicity in the standards but also the assumptions underlying these objectives need to be examined. The tacit assumptions that the public library is still the "people's university," that the free dissemination of books and information provide for an "enlightened citizenry," and that the public library "is the educational source for all, old and young," rich and poor, require examination both from an historical viewpoint as well as the contemporary national point of view of providing equal opportunities to all segments of society.

From a research point of view, serious consideration should be given to a uniform system of statistical reporting for public libraries. It is difficult to envision effective planning on the part of state agencies, particularly in their new roles of distributors of state aid and as regional and state planners, without a defensible uniform data gathering device. Without such measuring devices, critical appraisals of standards and goals will be increasingly difficult to make.

Two cases in point are raised by this study. The first is the "area served concept." Throughout library literature and in state plans for library service the area or population served has been a clearly defined concept. This study suggests that the public library is serving chiefly a particular group within the municipality. Beasley, in the work cited in this paper, has suggested that libraries be defined by function. Some other types of libraries and some other service oriented agencies and institutions have defined or redefined their goals to meet particular needs. Comparative studies would appear to be a fruitful beginning for new research.

A second case in point is the emphasis from the A.L.A. on the per capita basis as a measure of effectiveness. It is evident from this study that money is important from the municipal household side of the coin rather than from the library expenditure side. A meaningful rationality for the expenditure of public funds based on analyzable library populations would be profitable at any level of library service from the local "incited unit" to the national level.

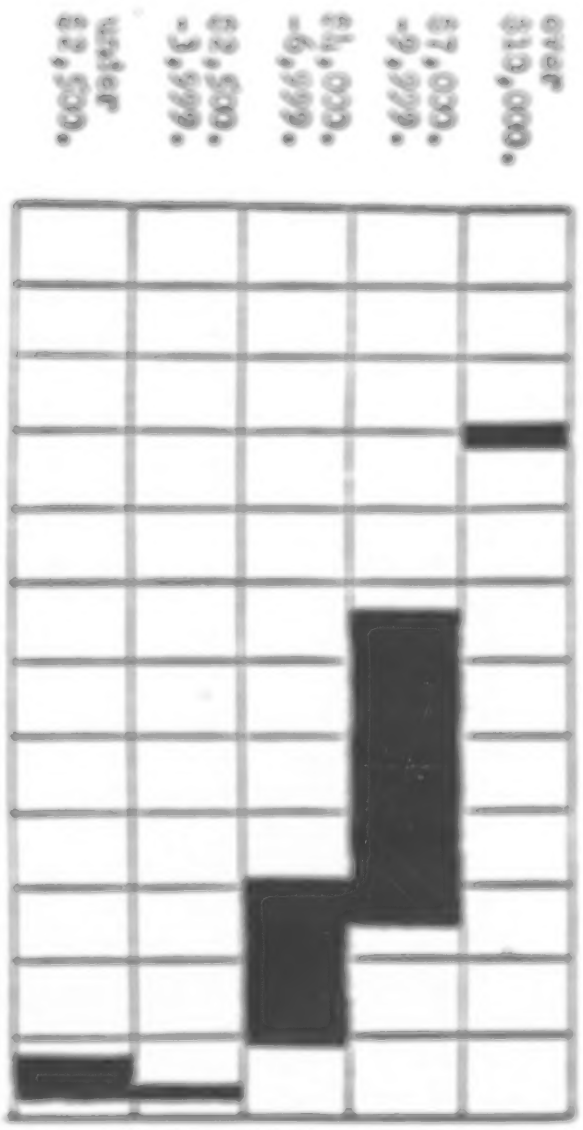
The study points to a number of approaches which might provide libraries with further tests of effectiveness. Beasley has suggested in the work cited above testing whether library populations progress (or regress) with municipal populations over a period of time. In view of the preponderance of library service expended on the student population, there is the serious question of the services or the lack of services to students of families in the lower income groups. This study very much needs a comparable "use" study to compare the users of the library, who may or may not be registrants, with the indices for registrations. A more ambitious community analysis which would

determine both library registrants and library users might give additional insights into the effectiveness of library services.

APPENDIX

Basic Household Index Graph 1

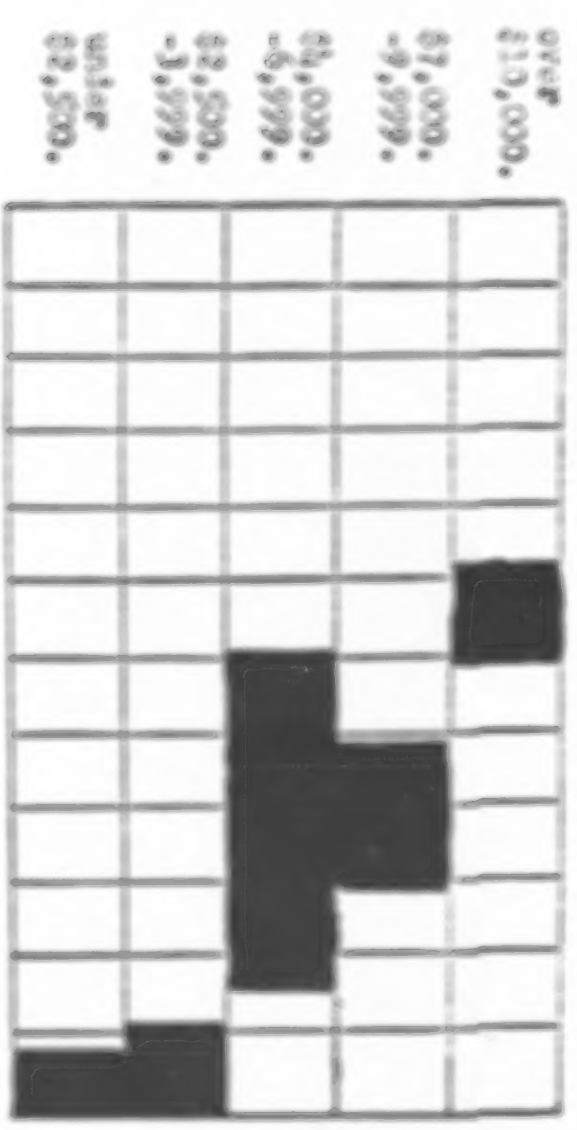
Municipality A1



Index 1 = 62.3%

Populations 26,650
Per Capita Expenditure: $3.93

Municipality A2



Index 1 = 57.1%

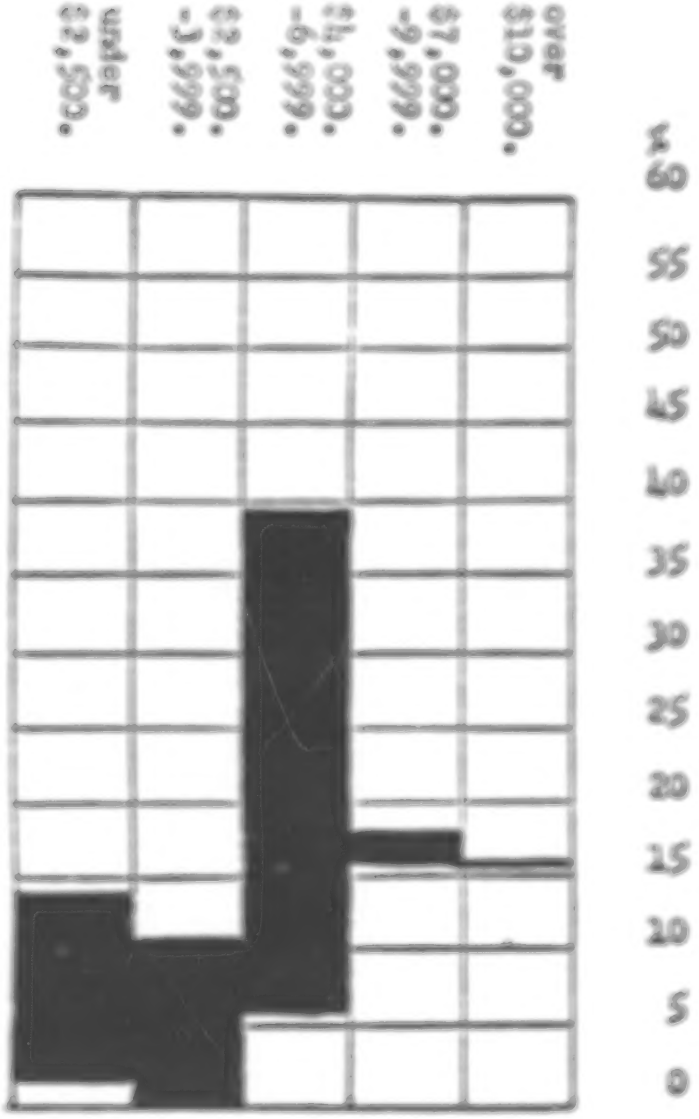
Populations 25,820
Per Capita Expenditure: $3.90

= % municipal households

= % public library households

Basic Household Index Graph 2

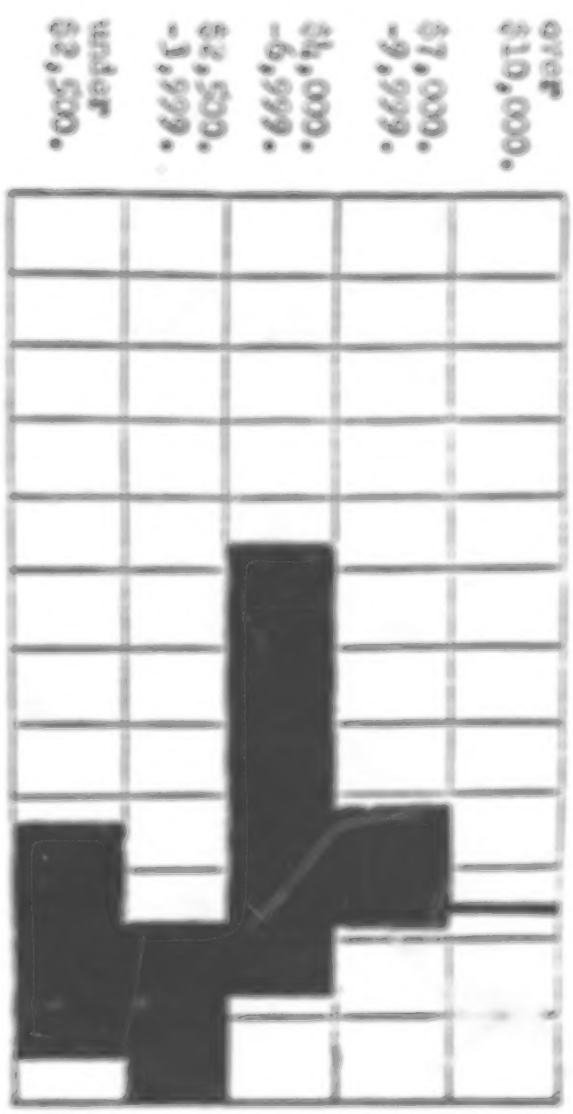
Municipality M1



Index 1 = 38.67%

Population: 4,990
Per Capita Expenditure: $2.48

Municipality M2



Index 1 = 31.79%

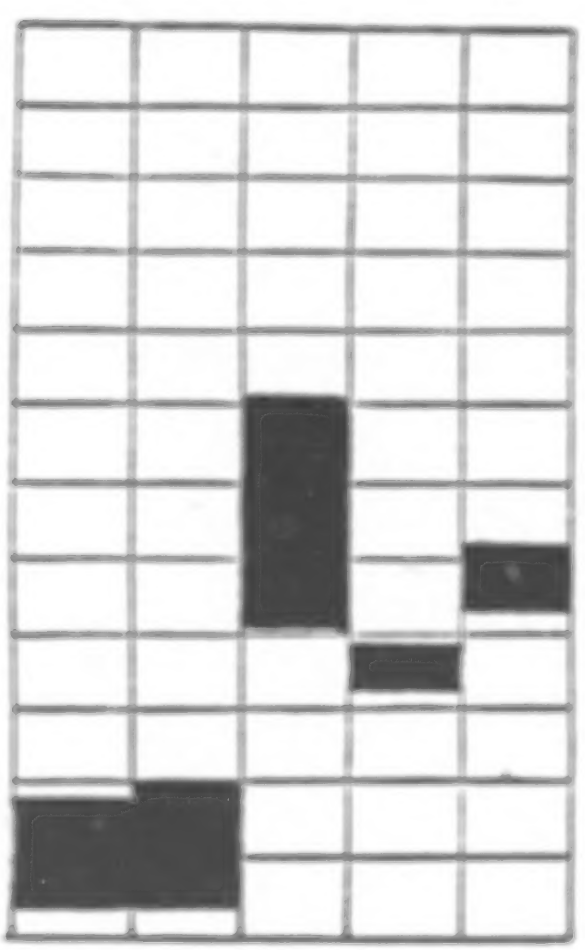
Population: 5,420
Per Capita Expenditure: $2.47

= % municipal households

= % public library households

Basic Household Index Graph 3

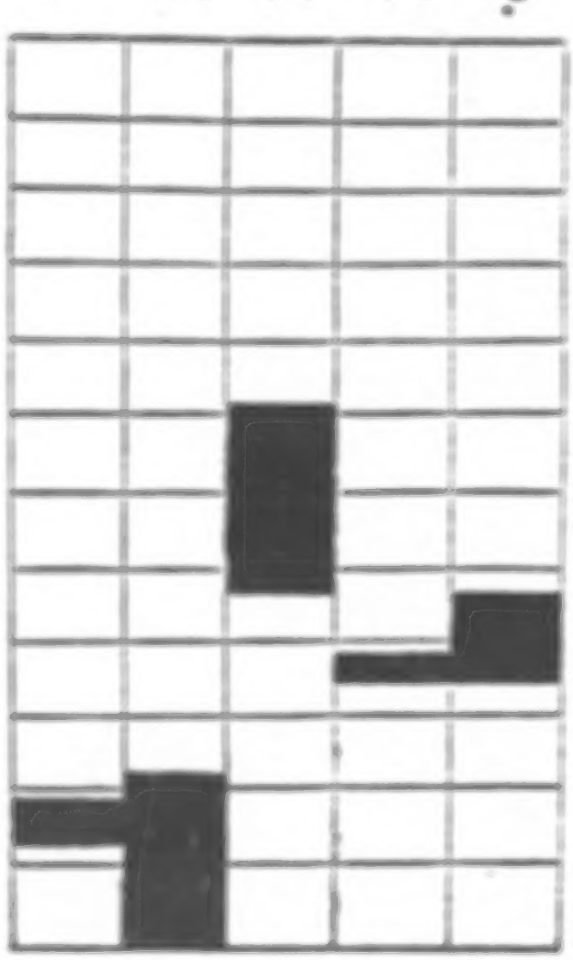
Municipality C1



Index 1 = 63.36%

Populations: 37,320
Per Capita Expenditure: $2.15

Municipality C2



Index 1 = 64.69%

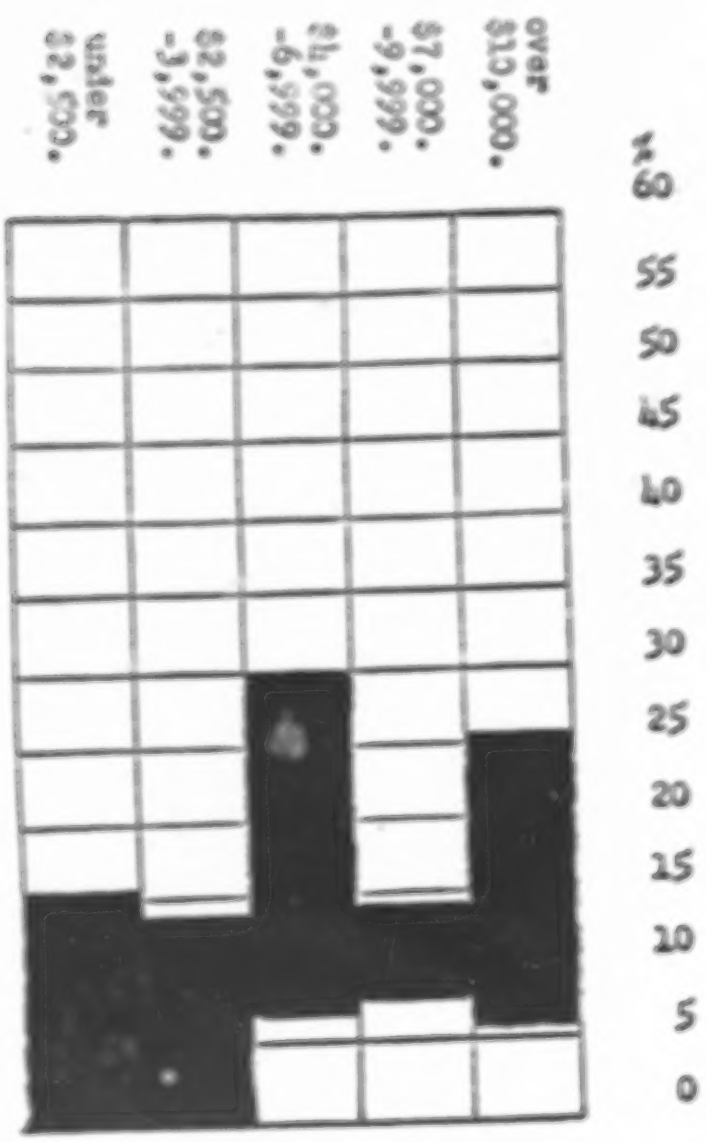
Populations: 36,230
Per Capita Expenditure: $2.06

= % municipal households

= % public library households

Basic Household Index Graph 4

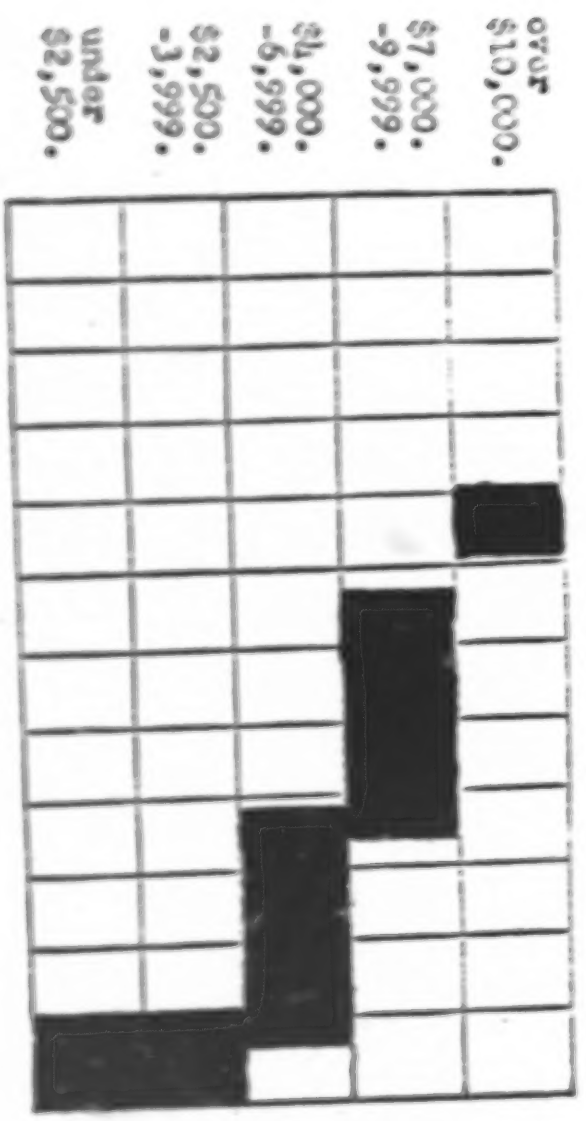
Municipality D1



Index 1 = 20.12%

Population: 12,200
Per Capita Expenditure: $4.11

Municipality D2



Index 1 = 56.31%

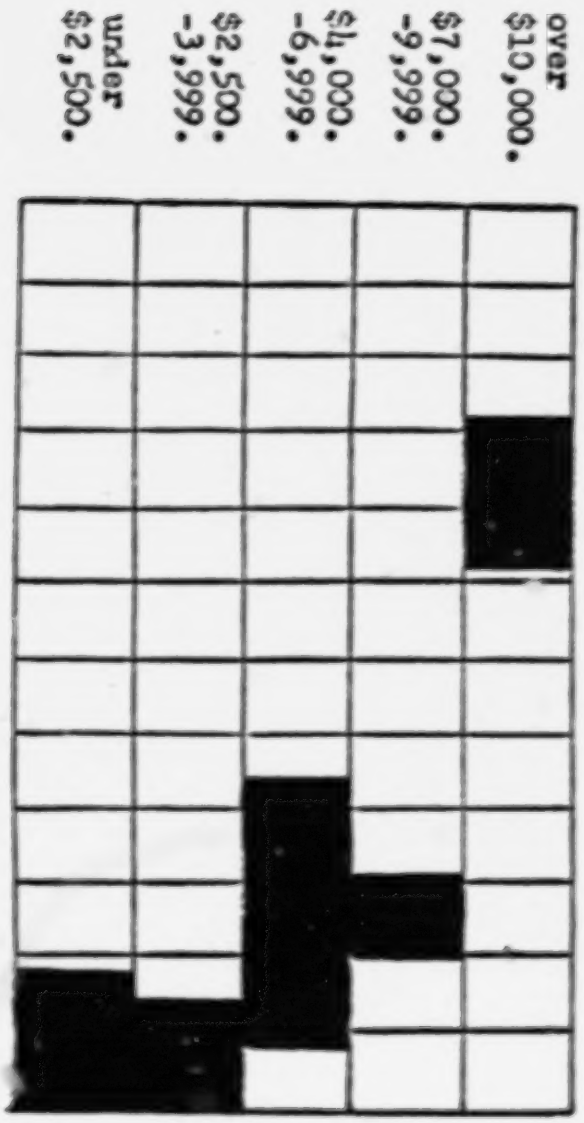
Population: 12,420
Per Capita Expenditure: $4.12

= % municipal households

= % public library households

Basic Household Index Graph 5

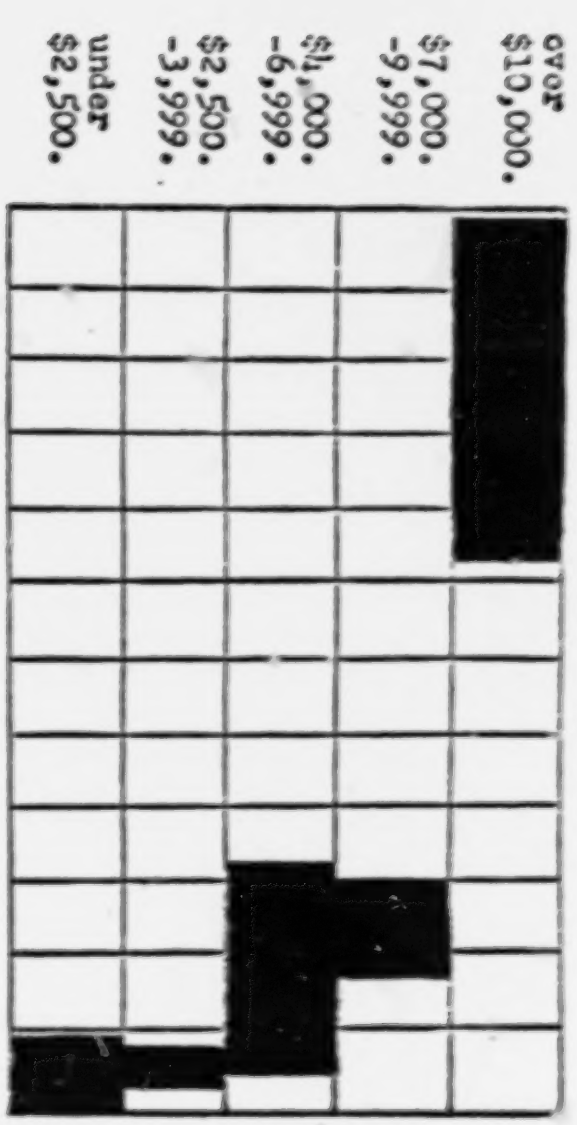
Municipality E1



Index 1 = 49.96%

Population: 23,520
Per Capita Expenditure: $6.88

Municipality E2



Index 1 = 48.56%

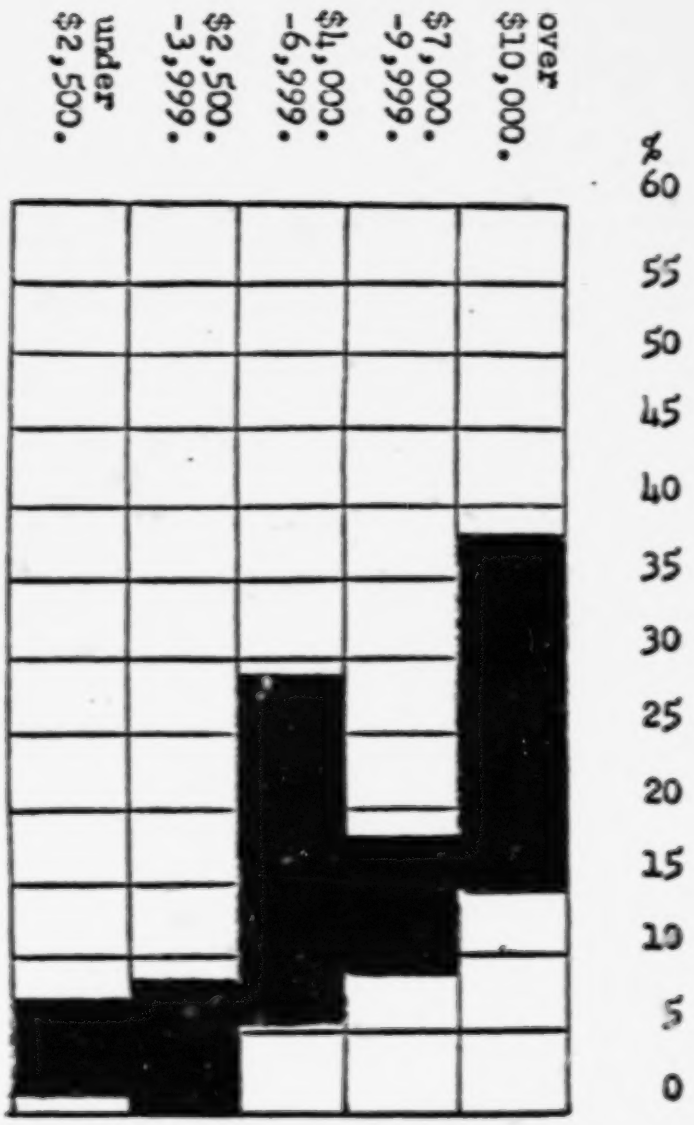
Population: 25,391
Per Capita Expenditure: $6.76

= % municipal households

= % public library households

Basic Household Index Graph 6

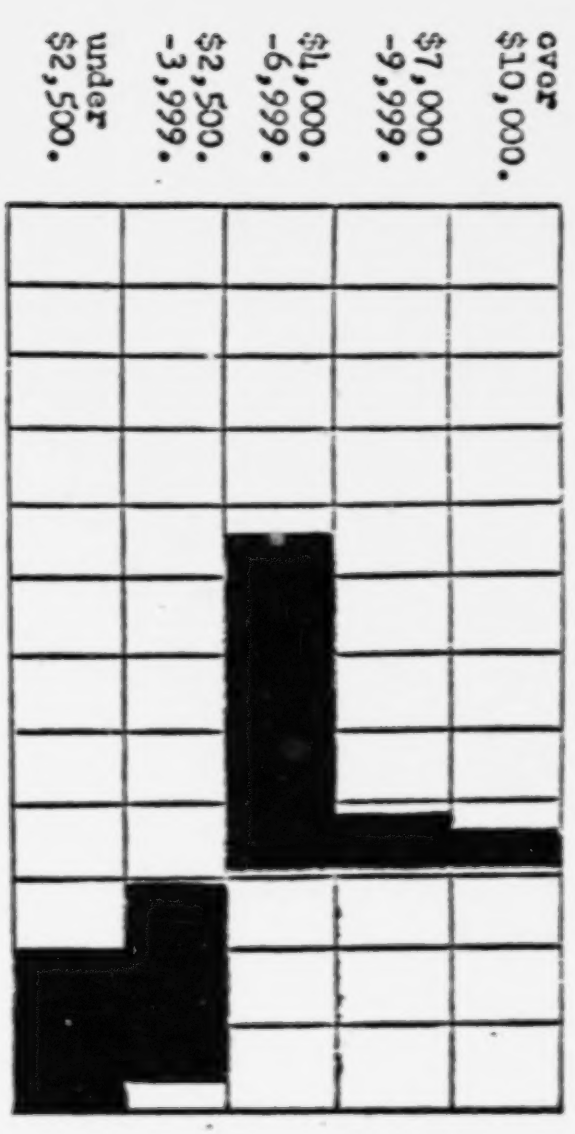
Municipality F1



Index 1 = 29.68%

Population: 25,750
Per Capita Expenditure: $1.38

Municipality F2



Index 1 = 47.61%

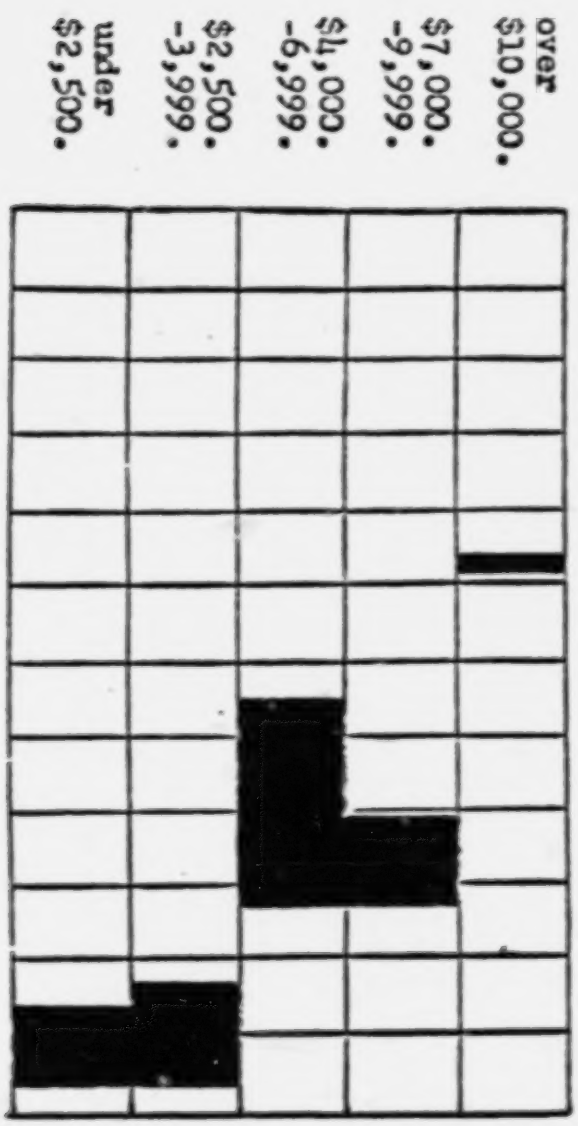
Population: 26,130
Per Capita Expenditure: $1.33

= % municipal households

= % public library households

Basic Household Index Graph 7

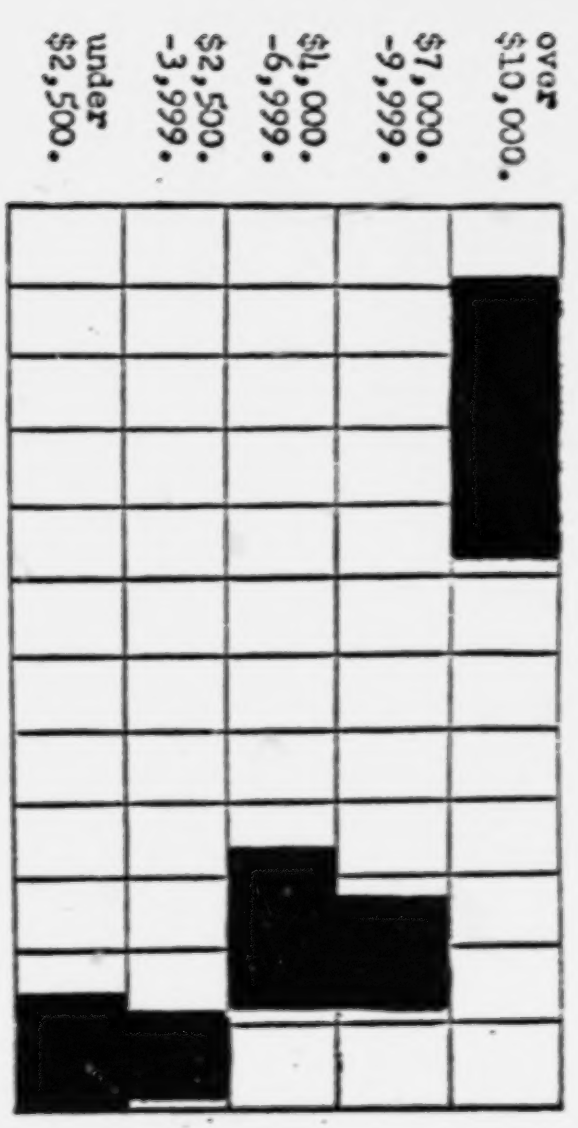
Municipality G1



Index 1 = 67.60%

Population: 30,830
Per Capita Expenditure: $2.99

Municipality G2



Index 1 = 48.74%

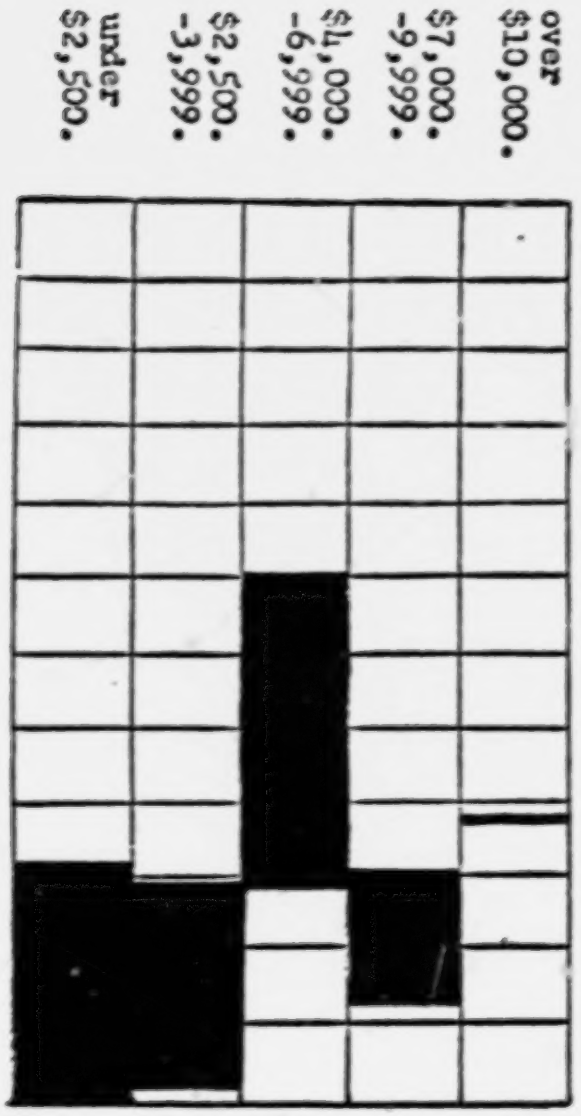
Population: 33,490
Per Capita Expenditure: $3.07

= % municipal households

= % public library households

Basic Household Index Graph 8

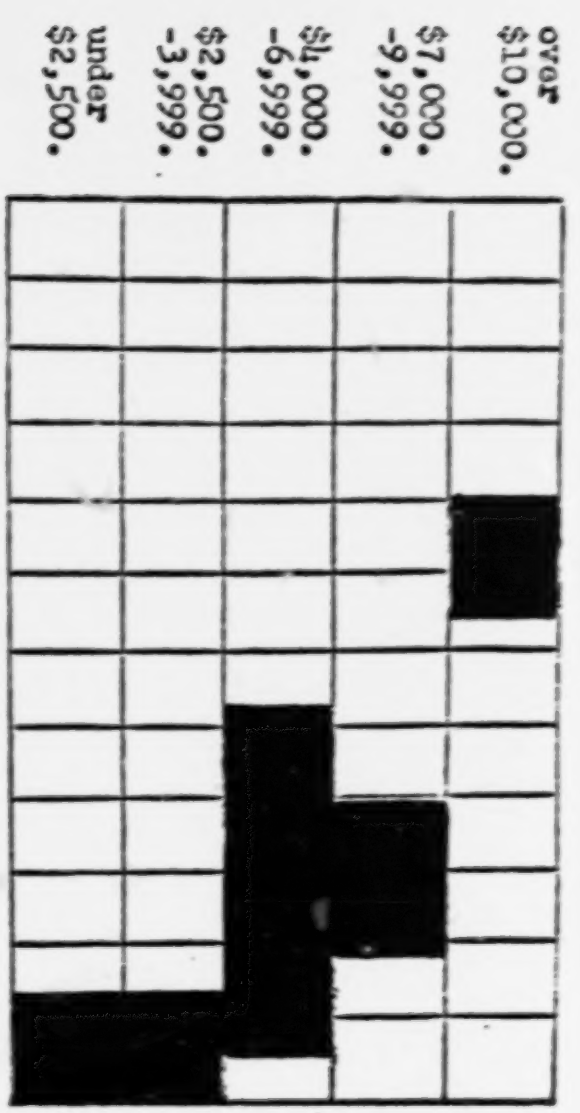
Municipality H1



Index 1 = 40.34%

Population: 37,940
Per Capita Expenditure: $2.59

Municipality H2



Index 1 = 44.09%

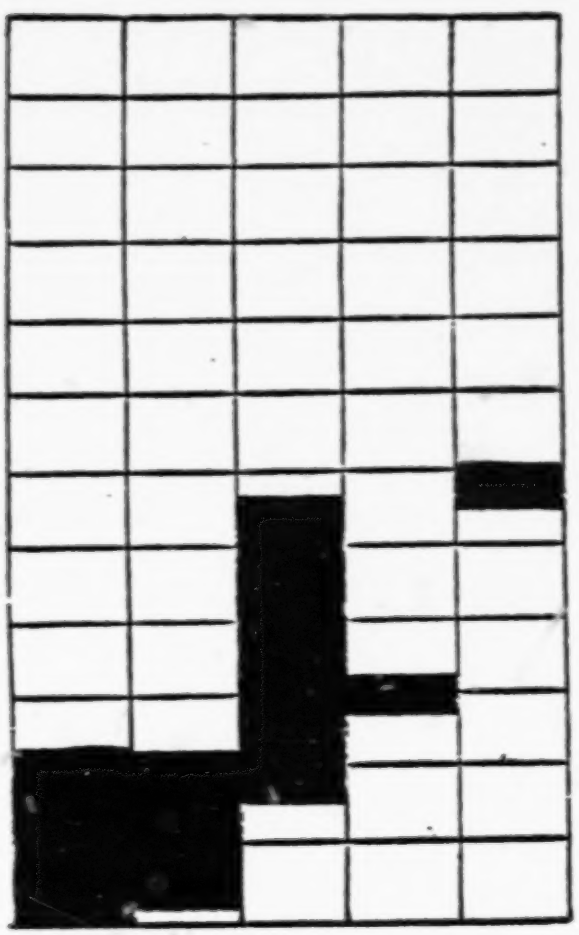
Population: 41,970
Per Capita Expenditure: $2.62

= % municipal households

= % public library households

Basic Household Index Graph 9

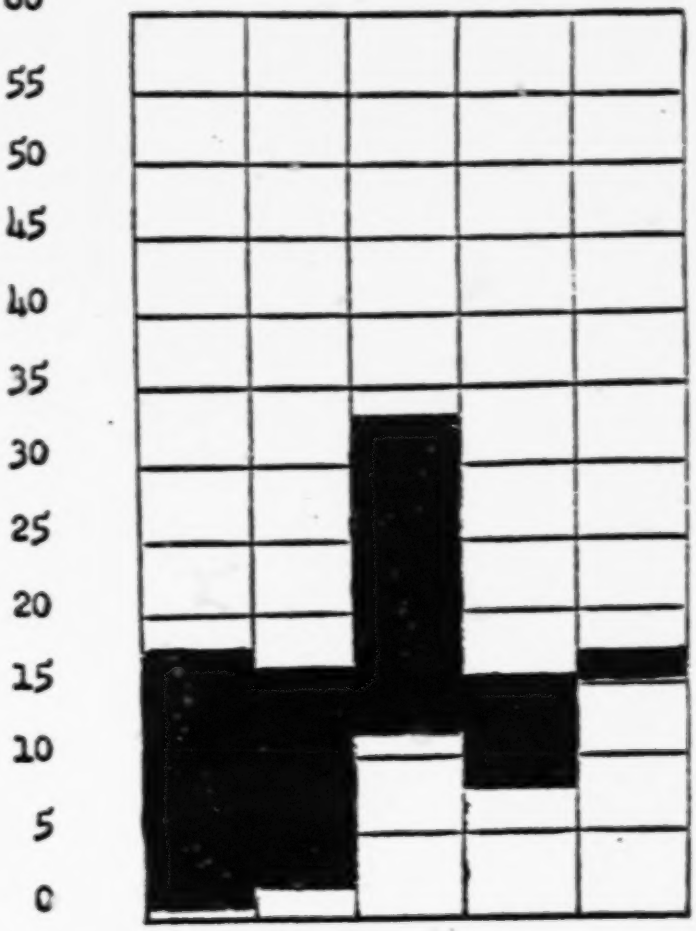
Municipality J1



Index 1 = 48.33%

Population: 47,860
Per Capita Expenditure: $3.05

Municipality J2



Index 1 = 38.45%

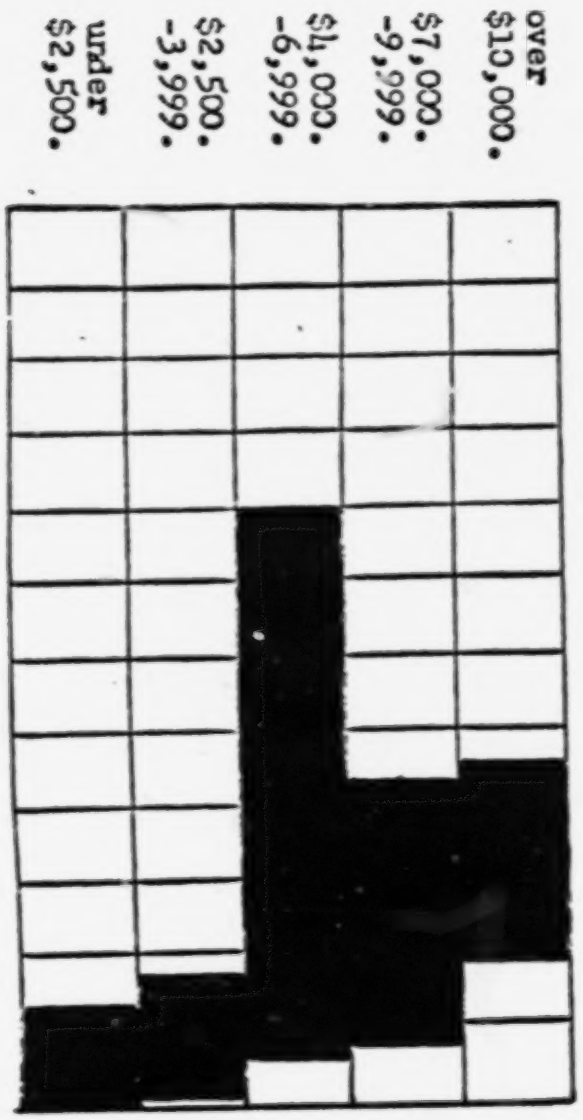
Population: 55.130
Per Capita Expenditure: $3.13

= % municipal households

= % public library households

Basic Household Index Graph 10

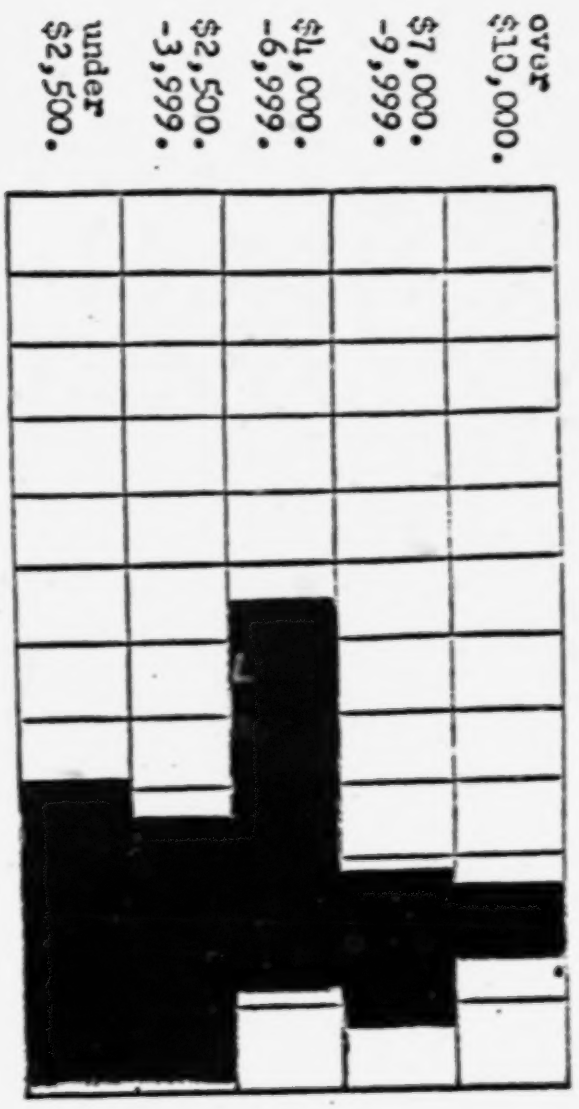
Municipality K1



Index 1 = 17.12%

Population: 93,230
Per Capita Expenditure: $1.91

Municipality K2



Index 1 = 18.84%

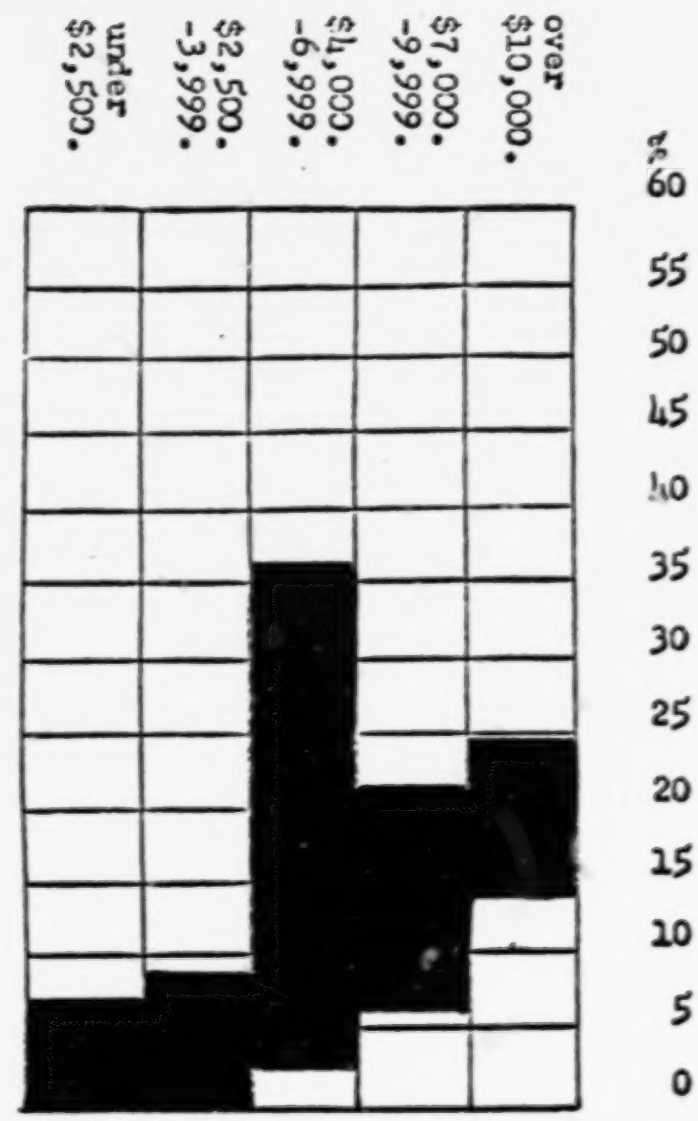
Population: 114,890
Per Capita Expenditure: $1.78

= % municipal households

= % public library households

Basic Household Index Graph 11

Municipality L



Index 1 = 23.38%

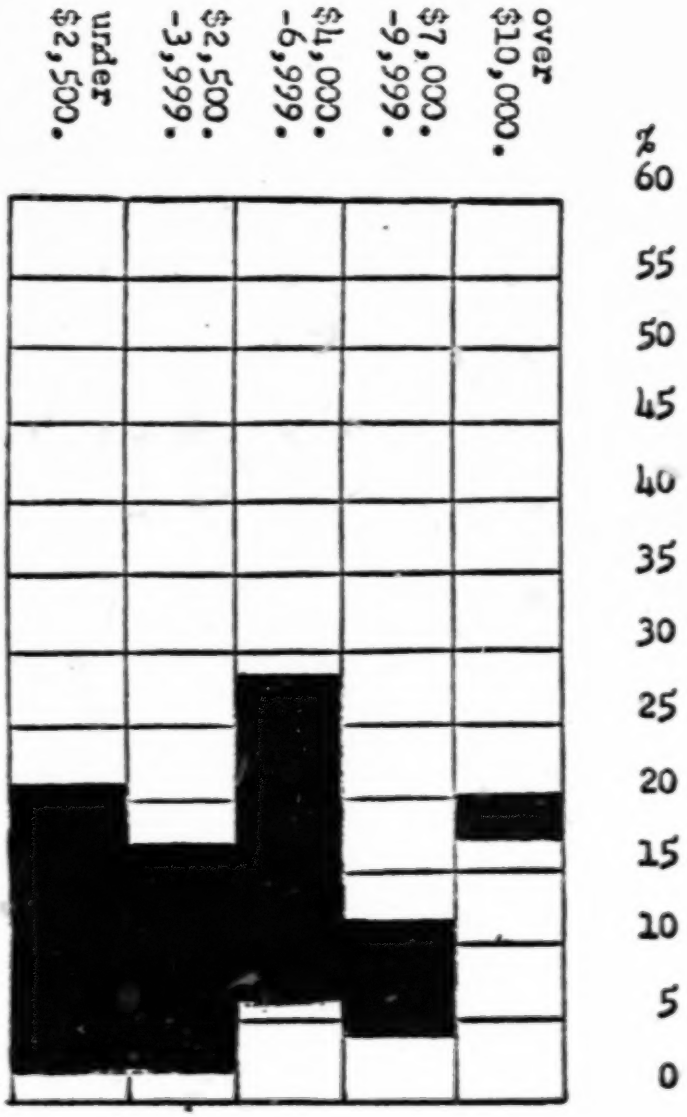
Population: 54,930
Per Capita Expenditure: $1.50

= % municipal households

= % public library households

Basic Household Index Graph 12

Municipality M



Index 1 = 32.56%

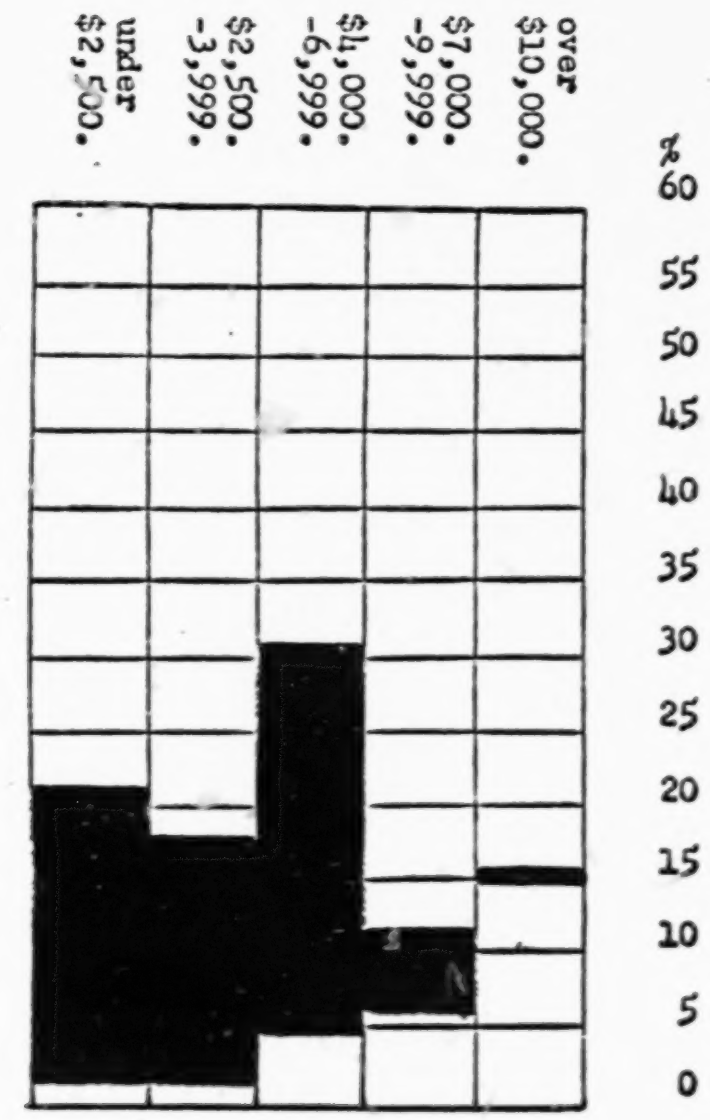
Population: 7,730
Per Capita Expenditure: $6.53

= % municipal households

= % public library households

Basic Household Index Graph 13

Municipality N



Index 1 = 28.82%

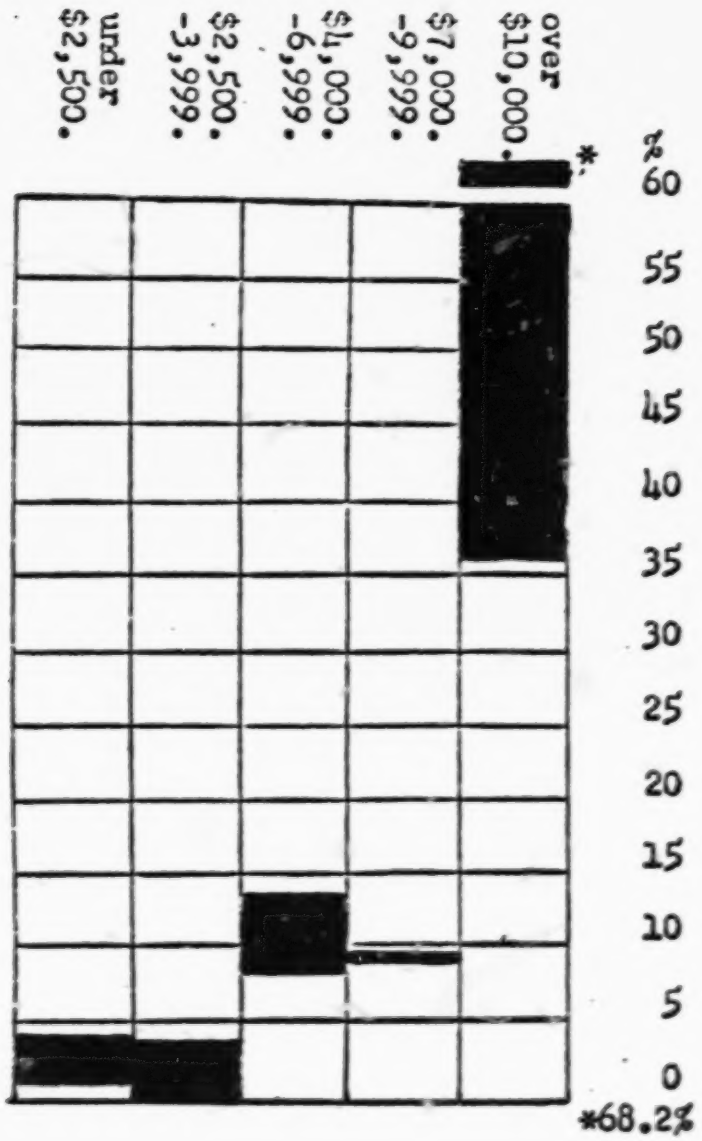
Population: 15,440
Per Capita Expenditure: $0.43

= % municipal households

= % public library households

Basic Household Index Graph 14

Municipality P



Index 1 = 52.49%

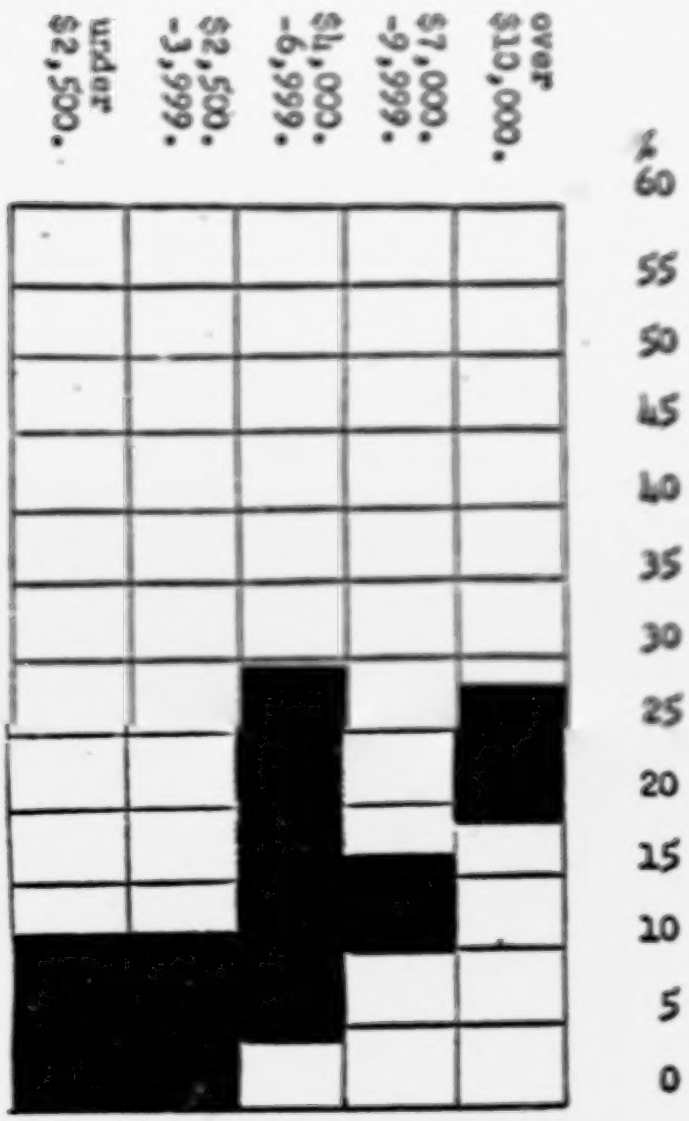
Population: 20,250
Per Capita Expenditure: $4.36

= % municipal households

= % public library households

Basic Household Index Graph 15

Municipality Q



Index 1 = 33.15%

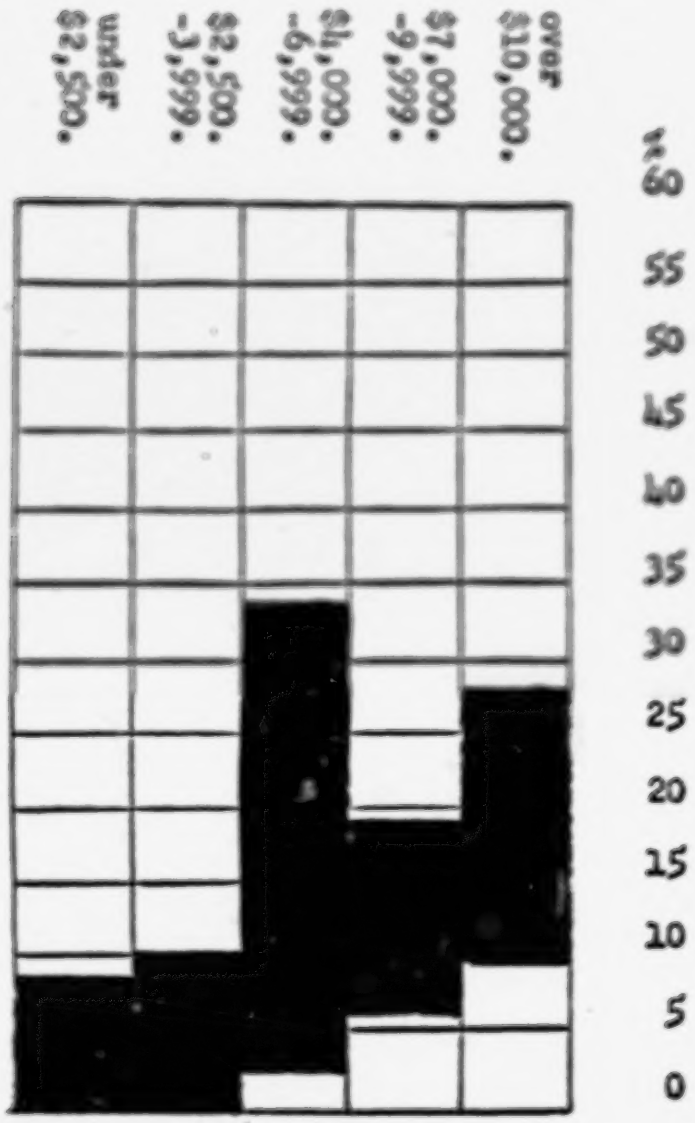
Population: 32,090
Per Capita Expenditure: $4.64

= % municipal households

= % public library households

Basic Household Index Graph 16

Municipality R



Index 1 = 18.77%

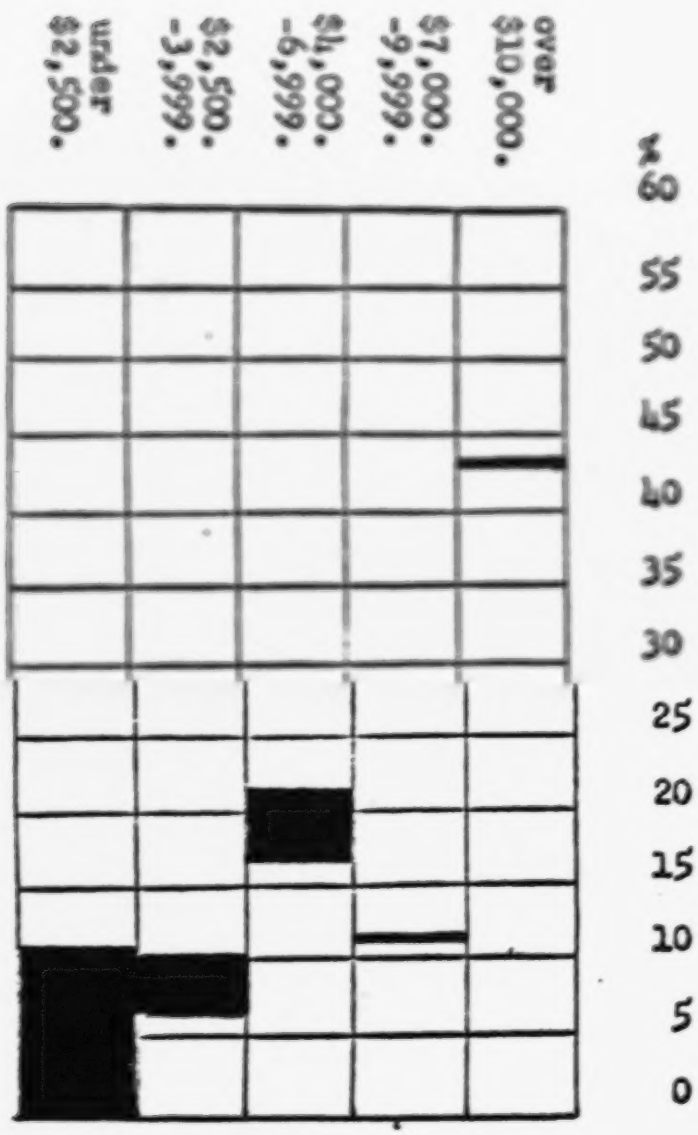
Population: 37,040
Per Capita Expenditure: $0.60

= % municipal households

= % public library households

Basic Household Index Graph 17

Municipality S



Index 1 = 77.73%

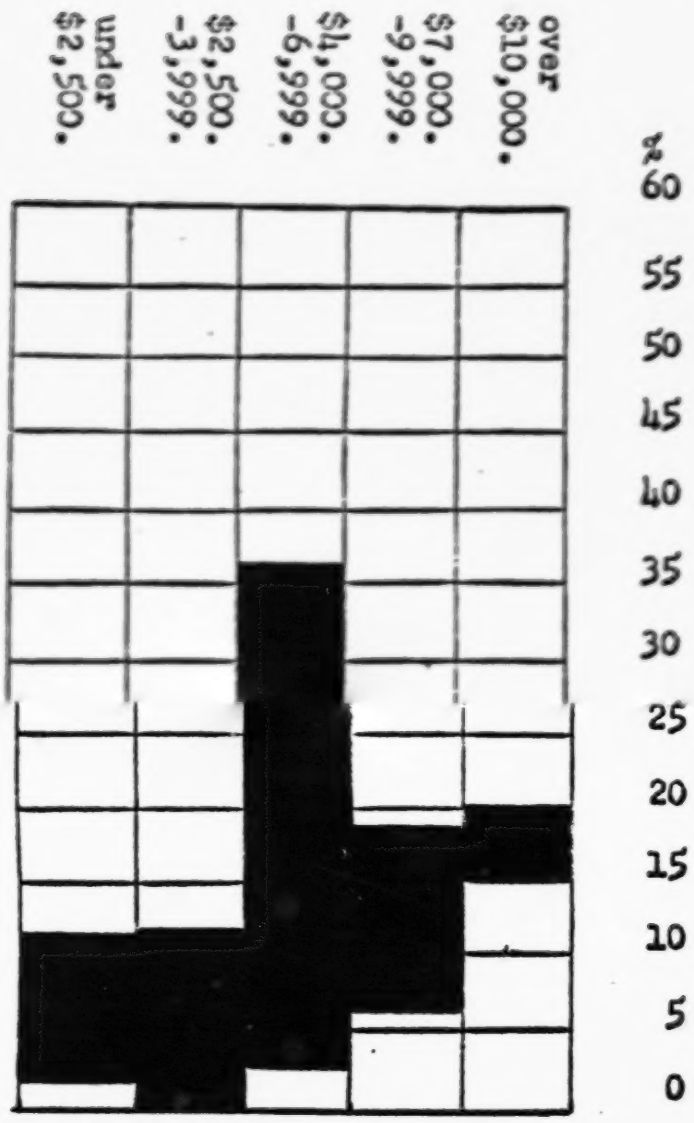
Population: 42,880
Per Capita Expenditure: $6.28

= % municipal households

= % public library households

Basic Household Index Graph 18

Municipality T



Index 1 = 27.50%

Population: 60,790
Per Capita Expenditure: $3.44

= % municipal households

= % public library households

LIST OF REFERENCES

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IDENTIFIERS

ABSTRACT Indices of the impact of public libraries on their municipalities are made by measuring the relationship of registrants against the municipal populations. Three indices based on registrants in households are developed. The methodology is based on "pairs" of libraries exhibiting two comparable characteristics: the population served and the per capita expenditure for library services.

The hypothesis tested is that there is a correlation between level of impact (effectiveness) measured by the indices and the per capita expenditure for services. A linear correlation method is used for testing. The hypothesis is rejected. However, a significant variable is discerned. Registration is strongly related to the economic profile of municipalities: where a high percentage of households earn over $7,000. per year, the percentage of registrations is large; where the percentage of incomes over $10,000. per year is higher, the percentage of registrations is higher.

The conclusion is drawn that economic position in the community is a stronger factor in registration than the amount spent by the library for services. The "population served" concept of the public library standards is questioned. A uniform statistical reporting system for public libraries is recommended.

The study was made of small and medium sized public libraries in New Jersey with 1964 data.